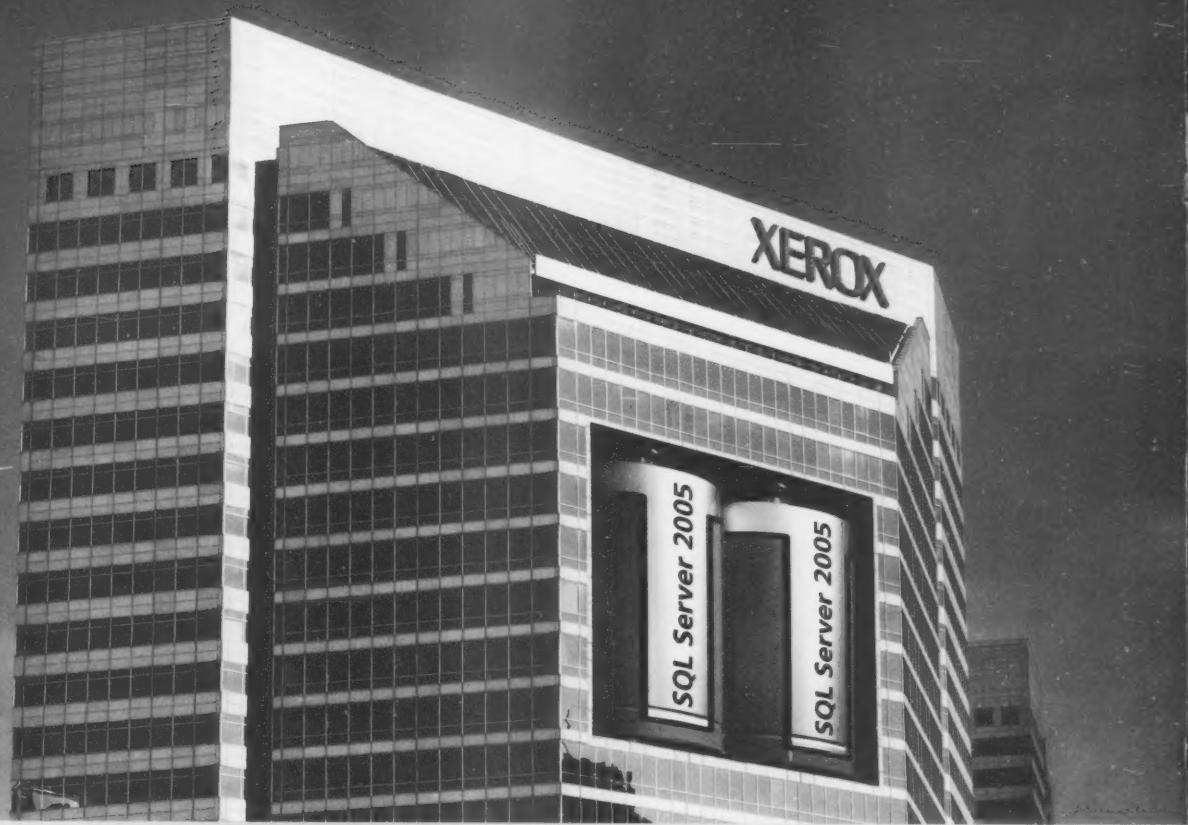


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IN-DEPTH COVERAGE: SUPERCOMPUTING

Supercomputing Pushes Toward The Corporate IT Mainstream

Current users cite business gains and call for wider adoption. But some barriers remain — including a need to convince CIOs to back the technology inside their companies.

BY PATRICK THIBODEAU
SEATTLE

LOREN MILLER, director of IT research, development and engineering at The Goodyear Tire & Rubber Co., thinks he can easily make the case for wider corporate use of supercomputing technology.

Simulations made possible by supercomputing have enabled Goodyear to gradually reduce the amount of money it spends on building physical tire prototypes, from 40% of its total research and development budget to just 15%, Miller said last week. The Akron, Ohio-based company is using the money it saves to fund more research work.

"From our standpoint, the results have been dramatic," Miller said at the Supercomputing 2005 conference here. Other companies in the U.S. need to realize that they can gain a competitive advantage from high-performance com-

puting systems, he added. Efforts are under way to broaden the corporate base of supercomputing users. For example, the Ohio Supercomputer Center (OSC) in Columbus has launched a program called Blue Collar Computing that's designed to provide businesses that lack high-performance computing expertise with tools for testing the technology.

And in a speech at last week's conference, Bill Gates, Microsoft Corp.'s chairman and chief software architect, predicted that one day some supercomputers will cost less than \$10,000. He also said that "mass computing" and supercomputing share common technical challenges and could benefit from combined R&D efforts.

William Kramer, head of high-performance computing at the National Energy Research Scientific Computing Center at the Lawrence Berke-

ley National Laboratory in Berkeley, Calif., said that Gates' appearance was an indication of the growing awareness of supercomputing's importance. "The output of [high-performance computing] activities are no longer hidden behind a curtain, if you will," said Kramer, the conference's general chairman.

Supercomputing is "being scaled down so more people can make use of these very complicated tools," he added. "And I think that's one of the

indications of Microsoft's interest here."

Like Gates, Stanley Ahalt, the OSC's executive director, envisions wide-scale use of high-performance systems by companies looking to run complex simulations and visualizations of products during the design and testing process. The OSC, which is beginning to talk with potential commercial

users of its systems, hopes to

encourage businesses to adopt

the technology by offering

help as well as access to its

supercomputing resources.

Ahalt said he's convinced that supercomputing is critical to improving the competitiveness of U.S.-based companies.

But he thinks that many IT

managers still aren't even con-

sidering the technology.

"CIOs are focused so acutely

on the bottom line, they aren't

ready for the next big thing,"

Ahalt said. IT managers, he

added, have to take the message about supercomputing's potential value to corporate executives "and explain that we are about to go through one of these radical shifts on our economic systems." Shortening product-development cycles will become even more important to companies than it already is, Ahalt predicted.

There were about 9,250 attendees at the supercomputing conference — more than a 10% increase from the prior year's. But many appeared to be from large companies, life sciences firms, national laboratories and academic institutions — the types of organizations that have already invested in supercomputing.

Better Product Designs

The Procter & Gamble Co. uses high-performance systems to run computerized visualizations of products that it's developing. Thomas Lange, director of modeling

P&G Exec Sees Disconnect on High-Performance Systems

Lange says IT needs to grasp technology's value and lobby for it

SEATTLE

Procter & Gamble relies heavily on supercomputing systems in designing and testing its products. But Thomas Lange, director of modeling and simulation for corporate R&D at the consumer products maker, thinks that many potential corporate users still see supercomputing systems as an esoteric technology that's years away from being relevant to mainstream business applications. Not so, he argued in an interview with Computerworld last week.

Is there a lack of understanding about supercomputing, or a disconnect in ex-

plaining it to potential users? Yes. The people in the field talk about it in too complex of a way. I think the mistake with high-performance computing people is they will talk about their specs — they'll use all this complicated jargon. That's a big barrier, because the world is not made up of a bunch of computer scientists.

What role can CIOs and other IT managers play in introducing supercomputing at their companies? Two things. First, they can be an advocate from the top down within the organization. They can create an environment that is supportive for the opportunity to get developed. It isn't just the CIO, by the way; it's also the CTO. Second, they can challenge their organization by saying, "We have to

innovate how we are innovating."

What are the risks that you see for companies that don't move into high-performance computing? Someone else will outinnovate you, and it may come from below or above.

But what kind of problems do you have to solve to bring supercomputing into an organization? Development is a zero-sum game, so every dollar you're going to spend on computing — and on the software, hardware and people to do it — is a dollar you aren't going to spend on some other part of development activity you already do today. So the challenge is, you have to sell the belief that "I'm going to be able to do this virtually faster and better than I'm

doing it today." Automotive did it. They took cars off the test track and started doing virtual work.

A lot of big companies use custom software on their high-performance systems. But if you're a midsize company, you may want a plug-and-play system with commercial software. How do you accomplish that? I have very little custom code. We made it a conscious choice — stick with commercial [programs].

Do the commercial products scale to the number of processors you need? They don't always. And when they don't, we get real upset and spend a lot of time talking to our software vendors. We have a willingness to go to another vendor. There's a marketplace for codes.

— PATRICK THIBODEAU



PATRICK THIBODEAU

IN-DEPTH COVERAGE: SUPERCOMPUTING

and simulation for corporate research and development at P&G, spent time at the OSC's trade show booth last week and spoke highly of the Blue Collar Computing initiative.

Some of the products that Cincinnati-based P&G buys from its suppliers, such as bottle caps, could benefit from computational design programs that run on supercomputers, Lange said.

"Oftentimes, these suppliers could be making lighter products, stronger products, better products," he noted. "It's the suppliers that supercomputing can make a difference for."

Phoenix-based Ping Inc. isn't a typical supercomputing user. The maker of golf clubs is a midsize company with about 1,000 employees. But earlier this month, Cray Inc. announced that Ping is using one of its supercomputers to simulate golf club designs.

The Cray XDI system installed at Ping is based on 12 Opteron processors from Advanced Micro Devices Inc. and has 24GB of memory. Eric Morales, a staff engineer at Ping, said the system has enabled the company to drastically reduce product development times. Simulations of product changes that once took a full day to run can now be processed in 20 minutes or less, Morales noted.

"It takes the development [cycle] from weeks down to days, and it helps us get to market faster," he said.

Gaining Ground

Earl Joseph, an analyst at Framingham, Mass.-based IDC, said he expects the worldwide high-performance computing market to reach \$7.25 billion this year, a net increase of 49% since 2003.

The technology should continue to gain ground with both technical and commercial users, "primarily due to the attractive pricing of clusters, combined with their growing capabilities," Joseph said.

Price/performance improvements, which are partly the result of increasing use of commodity processors, are helping to make supercomputing more



The use of supercomputing is critical to improving corporate competitiveness, Haft says.

accessible to businesses.

An annual listing of the world's 500 largest supercomputers, which was released last week, showed that more than three-quarters use processors from Intel Corp. or AMD. That's up from 41% in the 2003 listing and just 12% the year before that, according to the re-

searchers who compile the list.

Dave Turek, vice president of IBM's Deep Computing operations, said demand for supercomputing systems has improved dramatically, the same isn't true for much of the software used on high-performance systems. Programs such as fluid dynamics applications can be costly because demand for individual products is still relatively limited. And according to a study released by IDC last summer, many software vendors aren't increasing the scalability of their code to take advantage of systems with hundreds or thousands of processors.

In addition, many companies are collecting "vast amounts of data that demand rapid analysis for real-time decision-making," Turek said. In particular, he pointed to the growing use of radio frequency identification devices to track products.

But there are limiting fac-

tors as well. Although both the price and performance of supercomputing hardware have improved dramatically, the same isn't true for much of the software used on high-performance systems. Programs such as fluid dynamics applications can be costly because demand for individual products is still relatively limited. And according to a study released by IDC last summer, many software vendors aren't increasing the scalability of their code to take advantage of systems with hundreds or thousands of processors.

Concerns about security are also an issue, particularly for corporate users of shared high-

performance systems.

For example, WestGrid, a Calgary, Alberta-based high-performance computing consortium involving seven Canadian universities, has made its systems available to a number of companies for research uses. But it has found that some businesses are reluctant to use the systems for competitive reasons.

"They don't want two companies working on the same problem sharing [computing] resources," said Rob Simmons, a distributed systems architect at WestGrid. ▀

Eric Lai contributed to this story.

Gates Seeks High-End Role for Windows

SEATTLE

WHEN BILL GATES APPEARED before thousands of mostly technical computing users at Supercomputing 2005 last week, he was speaking to a crowd that makes scant use of Windows in high-performance systems.

Gates, Microsoft Corp.'s chairman and chief software architect, sought to bridge that divide by stressing what he sees as the commonalities between supercomputing and the "mass computing" market dominated by Windows.

"Many of these challenges that we face in software - connecting machines together, having parallel algorithms that allow many compute systems to work on a problem and combine their results together - these problems are very similar to the problems that exist in high-end supercomputing," Gates said.

He added that as processors reach gigahertz speed limits, the need for parallelism will become more important. And he sketched out images of an IT environment with desktop supercomputers linked to more powerful clusters running a mix of technologies.

"Microsoft wants to play a role here - to be a participant and work with partners to see how our software fits in these solutions," Gates said. Acknowledging that supercomputing setups "will often be extremely heterogeneous," he said Microsoft is reaching out to supercomputing centers to get a better understanding of what it should do with its products so they can "connect up to the other software that they have in a better way."

For now, Windows barely registers a pulse in high-end computing. According to the latest Top500 supercomputing list, which was released at last week's conference, Linux is running on nearly 75% of the 500 largest systems worldwide, while Unix is installed on 20% of them. Even Mac OS X was given



Gates says Microsoft wants to be involved in multivendor supercomputing installations.

a 1% share. Windows wasn't noted at all.

"It's astonishing how they missed out on this altogether," said John Abbott, an analyst at The 451 Group in New York, referring to Microsoft's limited role in high-end technical computing. He added that it's important for Microsoft to be recognized as a factor in the high-performance market because that's where technologies such as grid computing and clustering "are all being proven."

Microsoft last week released the second beta of a version of Windows Server 2003 that's being designed for clustered systems. Beta 2 of Windows Compute Cluster Server 2003 will be tested by users on systems with as many as 128 nodes, and Microsoft said it expects to ship a commercial version

"What a great day it will be when I don't have to have a dual-boot computing environment where I'm always switching between Linux and Windows."

ERIC SCHADT, SENIOR SCIENTIFIC DIRECTOR OF GENETICS RESEARCH, MERCK & CO.

by mid-2006.

The first beta was released in September and is being tested by 1,600 companies and other organizations, including the Seattle-based genetics research lab of drug maker Merck & Co. The lab is setting up a cluster of 20 dual-processor machines to run the software, said Eric Schadt, Merck's senior scientific director of genetics research.

Schadt's group now uses a 500-processor cluster running Linux to create simulations of gene networks and their behavior during drug treatments. Migrating to Windows Compute Cluster should save time because Merck does most of its prototyping and data mining in Windows, he said.

"What a great day it will be when I don't have to have a dual-boot computing environment where I'm always switching between Linux and Windows depending on the problem of the day," Schadt said. "I think Windows will catch up quickly [to Linux] if the environment works well, which does remain to be seen."

At the supercomputing conference, Martin Gasthuber, a researcher who is working on storage issues at DESY (Deutsche Elektronen-Synchrotron), a high-energy physics laboratory in Hamburg, Germany, was unimpressed by Gates' talk. To Gasthuber, it was all about marketing Microsoft's products.

"For me, it's not a vision; it's the next step he wants to do - which is coherent with the next generation of products he has in mind," Gasthuber said.

But Ted Dodds, CIO at the University of British Columbia in Vancouver, said that increased use of Windows clusters is almost inevitable. The notion of "mass computing and very technical specialized computing teaming together, I think, is pretty evident," especially as researchers turn to low-cost commodity clusters to solve problems, Dodds said.

- PATRICK THIBODEAU AND ERIC LAI

AT DEADLINE

Microsoft Warns of New Windows Flaw

Microsoft Corp. has issued an out-of-cycle advisory warning about a newly disclosed denial-of-service vulnerability in Windows 2000 Service Pack 4 and Windows XP Service Pack 1. The company said it issued the advisory in response to reports of proof-of-concept code that seeks to exploit the flaw. Microsoft said it isn't aware of any attacks using the exploit code.

HP Q4 Profit Down On Restructuring

Hewlett-Packard Co. reported that its fourth-quarter revenue rose on strong growth in PC and server shipments but said restructuring charges and a decline in revenue from consumer printers hurt its profitability.

HP BY THE NUMBERS	
Revenue	Profit
Q4 '05 \$2.9B	\$416M
Q4 '04 \$21.4B	\$1.1B

Cisco to Purchase Scientific-Atlanta

Cisco Systems Inc. has agreed to acquire Scientific-Atlanta Inc., a maker of cable TV set-top boxes, for \$6.9 billion. Cisco said it expects that the deal, already approved by the boards of both companies, will close in its fiscal third quarter, which ends in July 2006. Scientific-Atlanta will become a division within Cisco's routing and service provider group and operate as a separate business.

Citrix Adds Security Tools With Teros Buy

Citrix Systems Inc. last week acquired application security company Teros Inc. for an undisclosed sum. Citrix said it plans to link the company's application firewall appliance to Citrix's Web-based NetScaler application-delivery system. The move comes just months after Citrix paid \$300 million for high-performance application networking company NetScaler Inc.

C ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ BY MARK HALL



MATTHEW F. FOULKE

Stop Data Thieves Who Get . . .

... inside your databases from seeing what's off-limits to them. Ashok Aggarwal, president of TeamSoft Technologies LLC in Santa Clara, Calif., argues that depending on LDAP-based systems or Active Directory to manage application access rights is an out-

moded way to protect corporate data — especially information that's stored in databases. "LDAP lets me into an application but does not protect individual data tables," Aggarwal says. TeamSoft's Arc Wall software intercepts users trying to access a database and approves their privileges to see data at the table, row and column level. It can limit what end users see based on corporate policies that can be defined by job classification or for each individual user. For example, Aggarwal notes that there's no reason for a company's help desk staffers to see the full account information of customers, including Social Security and credit card numbers, when they're simply solving IT problems. He claims that Arc Wall works with all relational databases. Coming in Q1 of next year is an upgrade that will enable Arc Wall to also restrict access to unstructured data, such as PDFs, Word documents and even mapping data in geographic information system files. Arc

Wall comes as part of an appliance or as stand-alone software for Linux, Unix and Windows servers. Pricing starts at \$15,000.

Build it faster. No, faster. Even . . .

... faster than that! Product life cycles among manufacturers are becoming shorter.

So much so, observes Dave Haskins, executive vice president of development at Kinaxis Inc. in Ottawa, that if ERP systems don't work in real time, they can restrict a company's ability to bring products to market in a timely fashion. Outsourcing compounds the problem, he says. Haskins claims that his company's RapidResponse demand management software provides a real-time view of your inventories and/or those of your suppliers, giving you an edge on knowing what can be built and

when. With RapidResponse Version 8, due in mid-December, Kinaxis is shifting from a client/server Windows architecture to a Web services approach, using .Net on the back-end server and Java for clients. The new release also boosts performance, partly by increasing the amount of data that the software can crunch to 128GB, Haskins says.

IT auditors invade hosting firm . . .

... on an almost daily basis. That has been Rich Lee's experience since the compliance craze hit IT last year. Lee is CEO of Hosted Solutions LLC in Cary, N.C., and his three data centers support more than 300 corporate customers with either colocation or managed services for their

Web-based applications. He says the IT auditors sent by customers want to examine uptime statistics, security

procedures, trouble-ticketing processes and automated monitoring systems, among other matters. One big target of auditors is application service providers; although ASPs may be privately held companies, Lee says that because they offer services to publicly traded ones, they often get put under an auditor's microscope. The cost of responding to the parade of auditors is "not insignificant," Lee notes. Next year, Lee expects to assign one of his staffers to work full time with all the auditors who knock on his door.

Everyone can chatter while they . . .

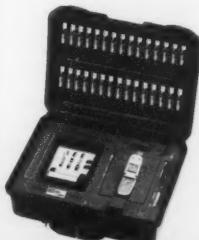
... e-mail on their Treos. This week, Everyone.net Inc. in San Jose is launching a push e-mail service for Palm Treo users via a \$39 ChatterEmail client. According to (no joke)

Josh Mailman, Everyone.net's vice president of marketing, the service will cost under \$20 annually per end user, each of whom gets 250MB of storage plus spam and virus protection. The new service lets Treo users receive calls while ChatterEmail is grabbing their messages in the background, Mailman says.

Capture calls made by crooks and . . .

... roll up their crime networks.

Law enforcement agencies will get more high-tech help in early December, when Chatsworth, Calif.-based LogiCube Inc. ships its CellDek ruggedized laptop with special tools that can analyze the calls made from a cell phone. Jerry Kaner, LogiCube's vice president of marketing and sales, says investigators at a crime scene often need information immediately and can't wait for a network carrier to trace the calls, e-mails, photos and even videos made from a suspect's handheld. Starting next month, Kaner adds, the good guys can attach a phone to a CellDek system, and the criminal's phone buddies will be revealed in an instant. Pricing starts at \$20,000. ♦



CellDek may be a crime-solver.



Treo get push mail service.

IBM



THE INVASION

DAY 4: My data has a life of its own. I can't control it. I can't manage it. I can't...get out.

DAY 5: I called for help. I tapped out a distress signal with an allen wrench. Do the guys upstairs know Morse code?

Turner Entertainment Taps Holographic Storage

Technology will replace tape- and disk-based systems

BY LUCAS MEARIAN

TURNER ENTERTAINMENT Networks has its lenses focused on holographic storage for storing and retrieving its growing library of movies, cartoons and commercial spots because of its speed and portability.

The network giant last month completed a test of the cutting-edge storage technology and plans to expand the effort next year when the technology becomes more widely available. Turner expects holographic storage to quickly lessen its dependence on tape- and disk-based storage.

"The holographic disk promises to retail for \$100, and by 2010, it will have capacity of 1.6TB each. That's pretty inexpensive," said Ron Tarasoff, vice president of broadcast technology and engineering at Turner Entertainment, a subsidiary of Turner Broadcasting System Inc. in Atlanta. "Even this first version can store 300GB per disk, and it has 160MB/sec. data throughput rates."

Turner expects to use production versions of the holographic storage systems from InPhase Technologies Inc. that it tested this year. The production versions of the technology, called Tapestry, are expected to ship next year.

Holographic disk storage can attain far higher density than standard magnetic disk drives, which store data only on the surface of a disk, because the holographic technology allows data to be stored throughout the polymer material that makes up a disk.

Analysts said the emerging technology is well suited for broadcasting and video editing because the data is read

and stored in parallel 1 million bits at a time, and prototypes of the holographic disk arrays have a data transfer rate of 27MB/sec.

That's music to Tarasoff's ears. Turner Entertainment has more than 200,000 movies, 25,000 commercials and 49,000 promotional spots that it stores on digital tape libraries from Storage Technology Corp. as well as a caching system of disk arrays.

As its content grows, the company's disk costs and tape

retrieval lag time have become challenges, Tarasoff said. And high-definition movies, which are gaining in popularity, use six times the storage space of traditional movies, portending significant problems in the future.

Tarasoff said Longmont, Colo.-based InPhase's hardware performed flawlessly in the test effort, during which a promotional spot was fed to the networks about as quickly as its tape library system could feed it. "Their production



InPhase plans to ship holographic technology in 2006.

version promises to be much faster than tape, but we've not seen that yet," Tarasoff said.

He said the test was performed partly as an "internal PR" exercise by Turner "to prove to our own executives that we have a solution down the line, and we want to prepare for that rather than just thinking we're eight to 10 years away from something."

InPhase isn't the only com-

pany promising to ship holographic storage arrays next year. Yokohama, Japan-based Optware Corp. plans to ship a system next year and hopes to break the ITB capacity

mark for disks by 2008.

John Webster, an analyst at Nashua, N.H.-based Data Mobility Group LLC, said that while holographic storage has "tremendous promise," it won't be gobbling up the spinning disk market anytime soon.

"It's too slow," he said. "It's potentially a replacement for tape. It's potentially a replacement for optical. It's definitely a deep archive technology."

InfiniBand Makes Gradual Comeback Into Storage

BY LUCAS MEARIAN

Two vendors unveiled products based on the InfiniBand high-speed networking specification last week, marking a revival of sorts for a technology once seen as a rival to Fibre Channel before faltering.

Isilon Systems Inc. in Seattle unwrapped a new network-attached storage cluster and appliance to accelerate throughput that uses InfiniBand



Isilon's IQ Accelerator sits atop three IQ 6000i InfiniBand arrays.

as a backbone to scale its system up to 250TB of capacity under a single file system.

The Isilon IQ 6000i system is built on rack-mountable 6TB nodes, which are each 2U high (IU = 1.75 in.). The IQ Accelerator appliance can increase cluster throughput to 6GB/sec.

Parag Mallick, director of clinical proteomics at Cedars-Sinai Medical Center in Los Angeles, is using 10 Isilon IQ 6000i systems as back-end storage for three mass spectrometer machines that analyze blood proteins for a cancer research project. The

spectrometers generate about 1TB of data per day.

"We had a fairly massive scalability problem. So the idea of taking a device off-line [to add storage capacity] was unthinkable," Mallick said.

The scientists working on the project also need massive bandwidth because they run analytical programs against the hundreds of terabytes of data collected over several months. "I'm pretty sure [the system] can saturate it," Mallick said.

When the first InfiniBand specification was released in 2000, the technology was touted as being far faster than existing Fibre Channel and other server-to-storage networking technologies, with throughput speeds of 10GB/sec. But the technology failed to gain momentum largely because it works well only when storage devices are located about 50 or fewer feet apart, analysts said, because signals degrade over long-distance wires.

Now InfiniBand is making a gradual comeback as a backbone technology for storage and server clusters and as a server-storage interconnect in data centers. The technology got a significant boost when Cisco Systems Inc. acquired switch maker Topspin Communications Inc. for \$250 million in April, said Tony Asaro, an analyst at Enterprise Strategy Group Inc. in Milford, Mass.

Also last week, Engenio Information Technologies Inc. in Milpitas, Calif., announced that it started shipping InfiniBand-enabled storage arrays, with data throughput rates of 10GB/sec., more than twice the speed of the fastest Fibre Channel-based arrays.

The Engenio 6498 controller and storage system integrate InfiniBand connectivity with the company's previous all-Fibre Channel 6998 array, which offers either high-performance Fibre Channel or high-capacity Serial ATA disk drives.

Engenio, a subsidiary of LSI Logic Corp., resells its products through Silicon Graphics Inc. in Mountain View, Calif., which bundles them with controller nodes from YottaYotta Inc. in Edmonton, Alberta, to create the InfiniteStorage TP9700 array. The product is priced from \$103,550.

Meanwhile, King of Prussia, Pa.-based SilverStorm Technologies Inc. earlier this month said it plans to introduce a InfiniBand switch with 20GB/sec. throughput in the first quarter of 2006.

Corrections

Due to inaccurate information

Disclosed during a session at the Storage Decisions 2005 conference, last week's Page One story about tiered storage ("IT Execs Seek Cohesive Data Storage Policies") incorrectly reported that MGM Mirage doesn't have a policy for handling credit card numbers and other sensitive data. The Las Vegas-based hotel and casino chain said it does have such a policy but needs to integrate that with an enterprise-wide storage management policy due to be completed next year.

The "Data Detectives" story in the Nov. 14 issue's Technology section misstated the number of consumers whose personal information is believed to have been put at risk by a security breach at data aggregator ChoicePoint Inc. Atlanta-based ChoicePoint said it has notified about 162,000 people that their data may have been accessed improperly.

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GLOBAL DISPATCHES

Philippine City Readies Wireless Deployment

TAGUIG, THE PHILIPPINES

THE MUNICIPAL government here plans next year to begin a project aimed at beating Manila to the punch and giving Taguig the country's first citywide wireless access zone.

"We're really striving to make information available and very accessible to the people through technology," Taguig Mayor Sigfrido Tinga said during a press briefing at a recent conference that was held in the city's Fort Bonifacio business district by the Computer Manufacturers, Distributors and Dealers Association of the Philippines. The project is expected to cost 10 million Philippine pesos (\$183,000 U.S.).

Tinga said that some parts of Taguig, such as Fort Bonifacio, already support Wi-Fi. But for the citywide project, the mayor is eyeing newer WiMax technology, which can support connections at ranges of up to 30 miles.

The future cost of operating the system remains a major concern for the city's government, Tinga noted. "It's not the IT

infrastructure that's bothering us but the operating cost," he said. "Right now, we're trying to come up with a plan on how to sustain it once we roll out the project."

■ MELISSA P. VERGARA,
COMPUTERWORLD PHILIPPINES

Philips CEO Pushes Use Of Chinese 3G Standard

BANGALORE, INDIA

A CHINESE STANDARD for third-generation mobile communications will emerge as one of the top 3G standards globally, the top executive of Philips Electronics NV predicted here last week.

The standard, called TD-SCDMA (for Time Division Synchronous Code Division Multiple Access), was created by the China Academy of Telecommunications Technology in Beijing.

Gerard Kleisterlee, president and CEO of Amsterdam-based Philips, said TD-SCDMA provides the high bandwidth required for data-intensive multimedia applications such as streaming

GLOBAL FACT

31%

The percentage of small and midsize businesses in Western Europe that plan to increase their IT budgets next year.

SOURCE IDC
FRAMINGHAM, MASS.

video and audio, as well as low-cost telephony technology for mobile phone users who want only that functionality.

He added that the cost of setting up a TD-SCDMA network infrastructure is lower than it is for other 3G standards.

Kleisterlee predicted that the standard will first spread throughout China and then into other developing economies that have yet to invest in other 3G approaches.

■ JOHN RIBEIRO, IDG NEWS SERVICE

Motorola Expands Its Mobile Ops in Africa

LUSAKA, ZAMBIA

MOTOROLA INC. is working to expand its African operations in a bid to better compete with rival vendors in the continent's mobile phone market.

The Schaumburg, Ill.-based company said it plans to roll out products built strictly for the African market, starting early next year. The expansion program also calls for the addition of branch sales offices in an undisclosed number of African countries.

The plan to launch about half a dozen phone models specifically for users in Africa is part of a wider effort by Motorola to bring out 32 unique handset models for emerging markets there and in Latin America and Asia. ■

■ MICHAEL MALAKATA, IDG NEWS SERVICE

Compiled by Mike Bucken.

Chinese Official Calls for Expanding IT Use

Says technology can help economic development in poorer regions

BY SUMNER LEMON
BEIJING

China should expand and improve its use of IT to help further the country's economic and social development, a Chinese official told attendees at the China Computerworld CEO & CIO Summit here last week.

"We need to speed up and improve the use of information technology in China," said Yang Xueshan, deputy director of the State Council Informationization Office, speaking to several hundred CIOs from companies across China.

Yang said IT has played an important role in China's eco-

nomic and social development in recent years. But, he noted, several serious obstacles remain in the effort to further expand China's technology base.

Many poor people in the country's western provinces and other areas can't afford access to the Internet and other advances in technology that are viewed as critical to China's future, Yang said.

"In these places, it is possible to be connected to the mobile-phone network, but no one uses mobile phones; it is possible to

be connected to the Internet, but no one is online," Yang said. The lives and incomes of people in these areas need to be improved so they can take advantage of such technologies, he said.

Official government statistics underscore Yang's point. China has 105 million Internet users, less than 10% of its population of 1.3 billion, according to the Ministry of Information Industry.

The growing economic disparity between China's western interior and its more-developed coastal regions in the east is a source of concern for China's leaders, who announced last month that the country's

five-year plan for 2006 to 2010 aims to reduce the gap.

The Chinese government views the spread of technology to rural areas to be just as important as the construction of highways and railroads as a way to spur economic development, said Simon Ye, an analyst at Gartner Inc. in Shanghai. "They don't want these regions to lag behind when it comes to IT," he said.

Security Concerns

Improving access to IT is just part of the country's technological challenge, Yang said, noting that more attention must be paid to information security. He called the need to protect the country's IT infrastructure and information systems a "matter of national security."

China's IT spending will top \$30 billion (U.S.) this year,

Briefly Noted

Softbank Group last week said that it has sold its one-third ownership stakes in Yahoo Inc.'s British, French, German and Korean units to Yahoo for about \$500 million. Tokyo-based Softbank said it will use the money to strengthen its broadband Internet business in Japan.

■ MARTYN WILLIAMS,
IDG NEWS SERVICE

Telstra Corp. in Melbourne, Australia, has disclosed plans to cut 10,000 jobs over the next five years as part of an overhaul of its operations. CEO Sol Trujillo said the cuts are a result of a strategic review he began shortly after joining the telecommunications vendor in July. Telstra's plan also calls for spending \$200 million Australian (\$147 million U.S.) on staff training.

■ COMPUTERWORLD TODAY (AUSTRALIA) STAFF

Intuit Inc. last week said it plans to hire 300 new staffers over the next five years at its product development center in Bangalore, India. Mountain View, Calif.-based Intuit currently employs just 17 workers at the center, which is developing a test-automation suite for QuickBooks accounting software and for integrating QuickBooks with applications from other vendors.

■ JOHN RIBEIRO, IDG NEWS SERVICE

according to IDC in Framingham, Mass. Around 70% of China's IT purchases this year will be for infrastructure products, IDC said. Looking at the areas that account for the rest of the country's IT spending, the market research firm projects that demand for software in China will grow 19% this year while demand for services will grow 22%.

IDC estimates that 80% of China's IT spending this year will be confined to the country's eastern provinces, which include the cities of Beijing, Shanghai and Guangzhou. However, IT spending in the less-developed western regions of China is expected to gather steam over the next three years, IDC said. ■

Lemon writes for the IDG News Service.



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BRIEFS

DOJ Fights to Keep BlackBerry Devices

The U.S. Department of Justice has asked a federal judge to ensure that government users can continue to send e-mail using BlackBerry devices even though a court has ruled against BlackBerry maker Research In Motion Ltd. in a patent-infringement case. The U.S. District Court has said that it may reinstate an injunction forcing RIM to stop selling BlackBerry devices and software in the U.S.

IBM, ClearCube Build Banking App

IBM and ClearCube Technology Inc. have agreed to jointly create a banking system that bundles the products of both companies. IBM's BladeCenter blades or xSeries servers will be bundled with ClearCube's management and allocation software and IBM's Director office management software to create a new product called IBM System Solutions for Branch Banking.

EDS Wins \$500M Outsourcing Pact

Electronic Data Systems Corp. last week signed a five-year, \$500 million agreement to provide IT services to Amsterdam-based grocer Royal Ahold NV. EDS will assume responsibility for hosting the global retailer's mainframe and midrange servers as well as provide LAN and voice network support. EDS partners Cisco Systems Inc., EMC Corp., Microsoft Corp., Sun Microsystems Inc. and others will help in the outsourcing effort.

U.S. Sanctions Oracle/Siebel Deal

The U.S. Department of Justice has formally approved Oracle Corp.'s proposed acquisition of Siebel Systems Inc. The proposed \$5.85 billion deal still requires the approval of European Union regulators. Both companies believe the deal is on track to be completed by the first quarter of next year, Siebel said.

IBM to Add Native XML Storage Support to DB2

Says upgraded database will handle both unstructured and relational data

BY ERIC LAI

IBM last week released the initial open beta of a planned update to its flagship DB2 database that will offer users the ability to natively store unstructured XML data separately from conventional relational data.

The upgrade, code-named Viper, is scheduled to be released in the middle of next year, according to Bernie Spang, director of database marketing at IBM. Spang said that Viper will be able to store data such as multimedia files, Excel spreadsheets and Word documents in an XML repository, which will operate in parallel with IBM's relational data repository under the control of a single DB2 engine.

Typically, relational data-

bases handle XML data either by storing the entire file as an object that isn't relationally indexed, or by "shredding" the file so the unstructured information fits into multiple relational data cells.

"Offering native XML functionality is very essential to delivering improved performance for data access," said Noel Yuhanna, an analyst at Forrester Research Inc. Oracle Corp. had "a head start on XML for many years," he added. "I expect this to become a game of catch-up and leapfrog among the big vendors."

Viper's XML storage capabilities could be of use to CheckFree Corp. in light of its interest in service-oriented architectures (SOA) and Web services, said Robert Catterall,

NEW FEATURES

DB2 Viper

IBM said the next version of DB2 will include the following:

- An XML data repository for native storage of unstructured data
- Support for the XQuery markup language and PHP scripting language
- Range partitioning capabilities, for enabling faster access to data

director of engineering at the Norcross, Ga.-based provider of online bill-payment services.

CheckFree uses DB2 to run databases with multiple terabytes or more of information. "We are not today storing XML documents as such in our databases," Catterall said. "But that has partly been because there wasn't an appealing way

to do that in a single database."

Oracle officials said the company began offering XML storage options five years ago and in July enabled users of its 10g database to natively search XML files using the XQuery markup language. IBM's native XML storage feature "doesn't add any value," said Mark Drake, an XML technology manager at Oracle.

Viper will also support XQuery for processing XML data, along with standard SQL. In addition, it will be the first DB2 release to support three different partitioning methods: range partitioning, multidimensional clustering and hashing. That support is aimed at helping IBM compete against Oracle, which has said that 10g offers six methods of partitioning data tables for faster access to information.

Despite estimates that the amount of unstructured or XML-formatted data at most companies is already larger and growing faster than structured relational data is, Yuhanna said he doesn't think that XML will replace SQL as the preferred data format. ▶

New WebMethods Tools Help Users ID, Fix Supply Chain Glitches

BY HEATHER HAVENSTEIN
ATLANTA

At 8:45 a.m. daily, Rick Moots and his team at Johnson & Johnson Health Care Systems Inc. (HCS) meet to discuss the previous day's supply chain problems — such as invoicing errors, lost orders and pricing disputes. Finding and fixing these problems can take considerable time and resources, Moots said.

To help smooth the process, Moots, manager of connectivity and operations at the Piscataway, N.J.-based company, is turning to the business activity monitoring (BAM) tools in WebMethods Inc.'s flagship Fabric tool set.

The Johnson & Johnson operating company, which manages contracts for large customers like hospitals and pharmacies, plans to imple-

ment the WebMethods tools over the next two months.

Moots was one of several users at last week's WebMethods Integration World 2005 user conference here who said they are using the new tools in Fabric, which joins WebMethod BAM, integration, business process management and other tools in a single offering. The tool was first brought out in October 2004 and was updated last summer.

Addressing Pain Points

HCS will be the first of Johnson & Johnson's 200 operating companies to use the BAM tool. It will use the tool for its order-to-cash procedure, which has 27 processes that take place during "hops" between order management, electronic data interchange and other systems, Moots said.

said. HCS projects that use the BAM tools will generate a 38% return on investment, he noted.

"When you don't know where an order is, it could cause duplicate ordering," Moots said. "When BAM goes in, we're expecting to see a lot of those processes causing us pain right now to drop."

In April, ABN Amro Holdings NV, a financial services company in Amsterdam, completed a rollout of the WebMethods BAM tool. The bank is using it to monitor its payment processes to ensure that they comply with newly established service-level agreements with customers, said Alex Matthews, ABN's chief architect of investment banking operations.

"[We can] spot potential incidents and nip them in the bud before they explode into a full-blown crisis," Matthews said.

ABN is using the payment

project as a reference model as it migrates to a service-oriented architecture. Matthews declined to provide details of the bank's plans to extend the use of the BAM tools.

Eric Austvold, an analyst at AMR Research Inc., said Fairfax, Va.-based WebMethods is one of the first vendors to create business process management and monitoring tools geared toward business users rather than IT users. "It shields a lot of the complexity from how you connect to the different systems," he said.

Motorola Inc. in Schaumburg, Ill., used WebMethods' BAM tool this spring to monitor order fulfillment at a manufacturing facility it was divesting in Mexico, said Shawn Greenwald, director of IT for integration and supply chain.

The company also plans to use the tool to monitor order fulfillment at third-party manufacturing operations for other products, he said. ▶

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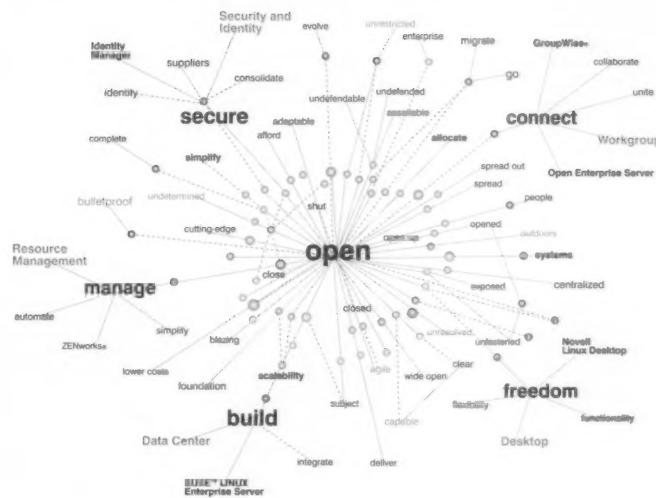
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Continued from page 1

Compliance

have for the first time replaced worms and viruses as the biggest driver of information-security efforts.

Conceptually, regulations can provide a set of guidelines that, in theory, organizations could use to establish good security practices, Jones said. "It's very hard to argue with concepts like 'least privilege,' and 'need to know' and 'defense in depth.' That's in keeping with everybody's strategy for managing risk," he said.

Companies, however, have problems when the sole corporate security strategy is to

ensure compliance with regulatory requirements, said Fred Trickey, information security administrator at Yeshiva University in New York.

"In one sense, [ensuring regulatory compliance] is of value to the information security community because it does give external validation of the things you've been working on," Trickey said. But focusing an overall security strategy on compliance with a specific regulation can create a false sense of security, he added.

"It's important that you don't lose sight of evolving threats, risks and attack models," Trickey said. "If you're entirely focused on regulations, you'll lose sight of that."

Establishing a successful security strategy can depend on whether compliance is the centerpiece of the effort or just a piece of the puzzle, said Gerhard Eschelbeck, chief technology officer at Redwood Shores, Calif.-based Qualys Inc.

"It all depends on where you set the bar," Eschelbeck said.

Ben Rothke, a senior security consultant at ThruPoint Inc., a management services company in New York, said good security systems should support regulatory requirements in general.

"The problem with compliance is that people tend to take a myopic view of what needs to be done whenever new regulations come out," Rothke said. "The point needs to be made that those organizations

with a solid security framework in place could easily handle any regulations thrown at them."

The need to comply with regulations such as the Sarbanes-Oxley Act, the Gramm-Leach-Bliley Act and the Health Insurance Portability and Accountability Act have certainly heightened the discussion around customer privacy and security, according to Greg Framke, CIO at ETrade Financial Corp. in New York.

In an interview separate from the CSI conference (see below), Framke said, "These are things we have been talking about and doing things about for a while." As a result, he said, "I see no particular challenge with compliance."

Board Concerns Prompt CISO Business Focus

WASHINGTON

REGULATORY compliance issues and concern over data compromises have brought information security issues to the forefront in corporate boardrooms, according to a panel of IT security managers at the Computer Security Institute here.

That trend is forcing security managers to adopt a more business-oriented approach to creating security strategies.

Selling management on the need for information security has become easier for IT managers because of privacy threats, data piracy and other issues, said Terri Curran, director of information security at Framingham, Mass.-based Bose Corp. "In a sense, the road has been paved more for us. Management knows they've got to have security."

However, security managers often tend to better understand technology issues than they do risk management topics, said Jack Jones, chief information security officer at Nationwide Mutual Insurance Co. in Columbus, Ohio. As a result, their efforts are often misaligned with business goals, he said.

"Perfect security is not achievable," Jones said. "At the end of the day, [the security function] is about managing the frequency and magnitude of loss."

That goal requires that security managers do a better job of putting technology issues into a business context, Jones said. That's a significant challenge for security officers, he added.

Increasingly, corporate security goals aren't about information security but about information assurance, which deals with issues like data availability and integrity, said Jane Scott-Norris, chief information security officer (CISO) at the U.S. Department of State. Thus, organizations should focus on risk management as well as risk avoidance. "You have to be able to evaluate risks and articulate them in business terms," Scott-Norris said.

Jennifer Bayuk, CISO at New York-based Bear, Stearns & Co., said that it's also important for security managers to demonstrate their value to an organization — especially because security is often seen as a cost center offering little return on investment.

"If you can't demonstrate what you are doing, it doesn't count," Bayuk said.

Looking ahead, Bayuk predicted that CISOs will have two distinct career paths: a technology-focused position that reports to the CIO, and a business-focused role that works with chief risk officers.

— JAIKUMAR VIJAYAN

Token-based Authentication Is a Success for ETrade

But CIO says firm is still evaluating technologies

BY JAIKUMAR VIJAYAN

In March, ETrade Financial Corp. became the first major financial services company in the U.S. to launch a two-factor authentication service to protect customers from online fraud and identity theft. In an interview with Computerworld, ETrade CIO Greg Framke talked about the system, which is based on RSA Security Inc.'s SecurID token technology, and other multifactor authentication services the company is evaluating.

How have customers responded to your two-factor authentication service? There's been nothing unexpected, certainly not on the con side. In fact, one nice ancillary benefit is that customers who have adopted SecurID feel more secure.

What was the main driver of the initiative? In the [past], companies focused a lot of their time and energy [on] protecting themselves from people who wanted to hack into the company

or launch denial-of-service attacks. While these things certainly haven't gone away, ETrade got the sense early on that there was a trend that [hackers] were starting to go after the weakest link in the chain, which was the customer. We've been employing a number of techniques to help protect our customers. Multifactor authentication is kind of like the padlock on the door.

Is multifactor authentication available to all of your customers? It's available to anybody who wants it. We did a pilot with a restricted number of customers, and the feedback was very positive. It is now available to all our customers. If you are an active trader or have more than \$50,000 in assets with us, you can have it for free. Otherwise, you pay a one-time fee of \$25.

How do you respond to concerns that token-based authentication is expensive to implement and can be inconvenient for users? I am well aware of those limitations, but we felt that it was too im-

portant to give our customers [nothing]. I did it knowing full well that I may end up replacing it with something that is not a hardware token. Our customers really like them, and I'm here for my customers.

Companies need to walk the line between providing real security and providing convenience. Customers are kind of schizophrenic. They want security, but they don't want to be inconvenienced too much.

Are you considering other multifactor authentication technologies? There certainly is room for other multifactor authentication technologies, and we are absolutely continuing to evaluate other techniques. In the technology business, you don't stand still.

Can you tell us what technologies you are evaluating? Probably not. Not because it's a secret, but just because I think we are still kind of going through some evaluations. We already employ an antiphishing service from Cyota.

Passmark has some interesting technology as well. The trick is using their techniques for authenticating customers in a way that doesn't throw a lot of false positives out there. ▶

Security Strategies

Findings from a survey of 1,300 organizations by Ernst & Young:

81% rate "complying with corporate policies" as one of the most important information security functions.

56% rate "enabling strategic initiatives" as one of the most important functions.

41% are using compliance with regulations such as Sarbanes-Oxley as an opportunity to implement changes to their security architectures.

38% are using compliance as a chance to reorganize their security organizations.

SOURCE: 2005 GLOBAL INFORMATION SECURITY SURVEY, ERNST & YOUNG



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AVAYA

Microsoft Set to Ship Great Plains Successor

Next-generation ERP suite is part of Project Green development effort

BY MARC L. SONINI

Microsoft Corp.'s Business Solutions group next month plans to release the first iteration of its much-touted retooled and rebranded set of ERP applications, Microsoft Dynamics GP 9.0.

The application, due to ship on Dec. 19, is the successor to the company's flagship Great Plains suite. The software has been tweaked to better utilize Microsoft's desktop, portal, business intelligence and development technologies, the company said.

Paulette Volf, senior accounting project manager at the Chicago Symphony Orchestra,

said she plans to implement the new software early next year to take advantage of its enhanced procurement and requisitioning capabilities.

The orchestra now runs Great Plains 8.0 accounts payable, fixed assets and general ledger software. Volf said GP 9.0 will be enabled with a security access feature to help cut down on errors because it will ensure that managers making requisitions will see only relevant ordering codes.

The Dynamics GP software is part of Microsoft's so-called Project Green, which will ultimately create a unified set of application software with a

common code base and interface. Microsoft began to detail Project Green, now called Dynamics, last spring at its Convergence 2005 user conference but has not disclosed a completion date.

The company will follow up with similar updated versions of applications, including Microsoft CRM and Axapta, over the next few months.

Integration to the Desktop

The integration with widely used Microsoft desktop technologies gives the vendor an advantage in competing with rivals like Salesforce.com Inc. for ERP business in midsize companies and in small divisions of large companies, said Judy Sweeney, an analyst at Boston-based AMR Research Inc.

want a lot of partner products and support from multiple vendors."

GP 9.0 will offer 21 separate, preconfigured role-based interfaces, said Lynne Stockstad, general manager of Microsoft Dynamics GP. The interfaces will have a Microsoft-style desktop look that's designed to allow end users to perform functions with minimal training. It will include separate interfaces for customer service, operations, finance, human resources and IT roles.

The software also comes bundled with business intelligence enhancements to enable access to transactional data and provide analysis and reporting capabilities, Stockstad said.

Dynamics GP 9.0 is priced from \$3,500 for a single-user Standard Edition. ▀

NEW PRODUCT

Dynamics GP 9.0

THE SUCCESSOR TO MICROSOFT'S GREAT PLAINS ERP SUITE INCLUDES:

- Enhanced integration with Microsoft desktop software.
- Business intelligence improvements.
- Tight integration with the SharePoint Services portal.
- Preconfigured, role-based user interfaces.

On the other hand, Sweeney expects Microsoft's indirect sales model to hamper its efforts to penetrate large organizations.

"Large companies want Microsoft to put more skin in the game," she said. "They don't

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MARK HALL

Utility Pricing

VENDORS would have you believe that utility computing is on the horizon. In the pretty pictures they paint of this next big shift in powering IT, standards play a central role. There's TCP/IP, Linux or Windows, and Web services with which to build a common utility infrastructure that customers can share

on demand. Why, vendors say breathlessly, it's just like those other utilities — electricity, water, the telephone. You use it when you need it, and pay for only what you need when you need it.

Baloney.

Real utilities have the most important standard for their services — pricing. No matter where you live, your power company will charge you for the kilowatt hours you consume. Water companies in the U.S. bill you by the gallon. And phone companies make you pay by the minute. How do utility computing vendors charge their customers?

Who knows? Each vendor is pursuing its own path. IBM is considering a complicated pricing model based on service units (SU). Inside Hewlett-Packard's Project Tycoon, business managers are mulling over the possibility of creating something called a "computon" to measure usage of on-demand resources. But neither company has struck gold in determining just what constitutes a computon or an SU. And when either company does announce its pricing breakthrough, it will be just that one company's pricing model, not an industry standard.

While we know that a kilowatt hour from Southern California Edison is identical to one from, say, Con Edison, we also can be sure that an SU from IBM will have little or no relation to HP's computon when they finally define those metrics.

Nora Denzel, a senior vice president at HP, says the vendor's goal is

to create a fair pricing model so that "companies who use more get charged more; those who use less get charged less." That's exactly how your power company treats your business, except the electric utility knows exactly how many joules were needed for each watt you consumed. IT vendors are a long way from knowing exactly

what goes into an SU or a computon. Little wonder, too. Computing isn't like other basic utilities. Although IT vendors can get precise about the amount of network bandwidth you consume and even the server CPU cycles you use, everything gets very fuzzy when they start factoring middleware and software into the equation. Would HP charge more per computon for an applica-

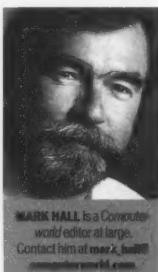
tion running on top of HP-UX than it would for one running on Linux? Would IBM's mainframe SUs cost more than ones generated on its iSeries systems? Sounds logical, but if your water company charged you more for river water than for well water, you might think it was trying to rip you off.

Today, when you read stories about users of utility computing, keep in mind that there's no utility pricing involved. Each user is working out a nonstandard customized pricing arrangement. Its deal is its deal. You're on your own.

For utility computing to fulfill its promise, there has to be a standard pricing model that all users can apply to their operations. Until then, on-demand computing will be just another complex, proprietary pricing strategy vendors use to keep you from fairly and accurately comparing one service to another. Without a pricing standard, utility computing is one more way for vendors to lock in users to their technology and services.

Once we have an industrywide utility computing pricing model (and I believe we will one day), utility computing will be real. But for now, it's only a pretty picture of a distant horizon.

Don Tennant will return next week.



MARK HALL is a Computerworld editor at large. Contact him at mark.hall@computerworld.com.

GERARD A. ALPHONSE

Seeing the Light on H-1B Visas

TO HELP ensure America's continuing technological leadership and competitiveness, IEEE-USA has long favored the permanent immigration of skilled foreign-born engineers and scientists as a much better solution than using temporary H-1B visas. Some in Congress finally seem to be listening.

The Senate voted on Nov. 3 to increase annual permanent-employment-based admissions by 90,000 through the visa classifications EB-1 (extraordinary ability), EB-2 (advanced-degree professionals) and EB-3 (baccalaureate-degree professionals and other skilled workers). It also voted to release 30,000 more annual H-1B visas, but differences with the House bill must be worked out in conference.

My career illustrates how permanent immigration is a far superior way to keep the U.S. competitive than relying on temporary admissions programs. I was born in Haiti and came to the U.S. for college. Following training in one of the world's most prestigious research laboratories, I became a permanent resident and then a naturalized U.S. citizen. Full citizenship contributed greatly to my ability to reach technical achievements I had never dreamed of and to become a top leader in the IEEE, the world's largest technical professional society.

IEEE-USA supports immigration policies that bring the best and brightest individuals from abroad and encourages them to stay. This has been our official position since 2000. Balanced immigration policies keep families together and create a level playing field for all workers.

The H-1B program, however, is plagued by myth and abuse. One myth is that the law requires U.S. employers to seek H-1B applicants only when qualified Americans can't be found.



GERARD A. ALPHONSE is IEEE-USA's 2005 president and an IEEE fellow. He is senior vice president of advanced technologies at Medelikon Corp. in Ewing, N.J.



But it wasn't a scarcity of talented Americans that led U.S. companies to max out the 65,000 H-1B visa cap for fiscal 2006; it was because H-1B workers have largely become a first option, not a last resort.

U.S. Department of Labor statistics show a decline of 221,000 employed U.S. technical workers in six major computer and engineering job classifications from 2000 to 2004. Surely many of these skilled workers could qualify for positions filled by H-1Bs.

Many H-1B visas — including the 20,000 for advanced-degree graduates of U.S. institutions — are used by companies that offer lower-cost technical services by non-U.S. citizens. This leads to wage suppression. The 2003 IEEE-USA salary survey reflected this with the first decline in median income for U.S. IEEE members in 31 years.

This is not surprising, considering the wages the Labor Department lets U.S. companies pay H-1B workers. A review of the Labor Condition Application database for the first quarter of fiscal 2005 reveals that an H-1B electrical engineer makes \$10 an hour, a Web site translator \$8 per hour and a secondary school math teacher just \$16,034 a year. The law requires that H-1B employees be paid the prevailing wage for their occupations, but the implementation of these regulations can be, and is, easily gamed.

Three government reports have found flaws in the H-1B program. Perhaps most troubling is a September Department of Homeland Security report that found that the DHS lacks the technology and methodology "to adhere to the legislated cap" of 65,000. The DHS approved approximately 71,740 H-1B visa petitions in fiscal 2005.

So rather than adding more H-1B visas to a flawed system that hurts all workers, Congress should focus on fixing the permanent admissions program. This will help bring the talents needed to keep the U.S. economy the world's strongest and most innovative. ▀

MICHAEL
GARTENBERG

Microsoft Vs. Google

RE OFFICE LIVE and
Windows Live Microsoft's response to
Google?

Microsoft's announcement of these

new online services was interesting, and there are implications for IT folks.

The speculation about these services being a reaction to Google isn't totally off the mark, given the fact that Google is making use of Microsoft's own Windows platform and applications to extend its reach. For example, Google's toolbar for Internet Explorer, Google Desktop (which works well with all of Microsoft's desktop applications), Google Earth (Windows only) and Blogger for Word all leverage Microsoft's stuff.

Office and Windows Live are Microsoft's acknowledgement of these attempts to co-opt the traditional Microsoft space with new offerings built around Web 2.0 technologies. There's been a lot of buzz about using Ajax for rich Web development, and Microsoft wants to be part of that buzz. At the same time, Microsoft knows that a rich-applications-and-operating-system model still has a lot of life left in it. It's not about one vs. the other for Microsoft; it's about both working together. The new services recognize the impor-

tance of connectivity and the near-ubiquitous nature of high-speed access but also combine those with the richness that you get from a traditional model.

These aren't replacements for Office or Windows but extensions of them. If you're looking to replace Word, Excel, PowerPoint or Outlook with these offerings, you're looking in the wrong place. Likewise, this isn't about a retreat from Windows as the core operating system platform.

Overall, this strategy makes sense to me. It's a way for Microsoft to participate in the next generation of Web applications while furthering the reach of its core business for Windows and Office. Look for this extension to continue as we get closer to a real beta of Windows Vista. This move also repositions MSN as a content portal and allows the MSN technologies to tie directly into the Windows brand, which may give them more allure for both business and consumer end users.

The bottom line is that the new Live strategy is about the fact that Microsoft

faces very different challenges today in both the business and consumer markets than it did in the '80s and '90s. A skirmish with Google may seem similar to battles Microsoft fought against the likes of Netscape or Novell, but it's not the same at all. Google is also a very different company than Netscape was; there are far more business users and consumers using Google than ever used Netscape, and most of them see no need to switch to anything else. Google has evolved into a verb. When was the last time someone said they were going to "MSN Search" you?

Live is a critical strategy to leverage the traditional power of the desktop operating system and applications model and extend it to the next generation of Web technologies. This is only the first phase. Look for more offerings for small and midsize businesses when Office Live is launched in 2006 and the next version of Office ships. Microsoft's news was only the tip of the iceberg in terms of Web-based service offerings. It's time to take a closer look at what Microsoft has done to get a glimpse of where it's going. ▀



MICHAEL GARTENBERG
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READERS' LETTERS

Security ID Systems Will Never Be Perfect

DREW ROBB'S coverage of "Privacy-Minded Security" [Sept. 12], which reported on IBM's Sovereign Information Integration technology, contains a fundamental logic flaw.

No matter which hashing algorithm is used, no matter how many commutative encryption methods are used, only exact matches of data will be identified.

Considering the fact that cultural and ethnic naming conventions are extremely loose and can be applied in a number of ways, more evildoers will escape detection than be identified.

And since most ID numbers do not contain check digits, data entry errors will also provide them with a free pass.

Consider the case where a baby was identified as a potential terrorist by a list-comparison system. Airline personnel suggested the use of the baby's first

initial or nickname, and the problem reportedly went away.

If there is no accurate matching algorithm or trust level between the processing parties, any system is doomed to failure, no matter how it is hashed or encrypted.

Stephen Richard Levine
Chief technologist, Franzel
Mortgage Consultants,
Westlake Village, Calif.

If the World Is Flat, Plan for Job Moves

BARBARA GOMOLSKI has done a good job in capturing the central theme of Thomas Friedman's book *The World Is Flat* ("Slouching Toward a Flatter World," Sept. 19).

The message is quite clear: Whatever can be automated will be automated. If one does not add value where one is working, one's position will be eliminated as a

result of globalization. So get used to lifelong learning, amassing new marketable skills and adding value to your company.

Vishwa M. Bhargava
Coordinator, organizational effectiveness, Dominion Resources Services Inc.,
Glen Allen, Va.,
Vishwa_Bhargava@dom.com

Connected Means Less Accessible

I WAS AMUSED by Paul Glen's column "Connected or Addicted?" [Oct. 3].

I know of a manager, referred to as Mr. BlackBerry, who pulls out his device and starts fiddling with it every five minutes.

Conducting a meeting with Mr. BlackBerry present is practically impossible. When he pulls out his BlackBerry, we all have to stop talking and wait for him — which really extends the meeting — or else we continue talking and then

repeat everything for him when he's done.

While Mr. BlackBerry thinks he's now more accessible because he's connected, he's actually less accessible, because the only way to contact him is through his BlackBerry. These devices are a poor substitute for e-mail and an even worse substitute for face time.

Mike Waits
Neptune, N.J.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 1 Speen Street, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

 For more letters on these and other topics, go to www.computerworld.com/letters

Oracle Fusion Middleware

“Excellent”

Oracle Application Server 10g, Release 2

InfoWorld Ranking: Excellent

Criteria	Score
Manageability	10.0
Integration	9.0
Interoperability	8.0
Performance	8.0
Scalability	9.0
Reliability	8.0
Value	8.0

InfoWorld Review, April 11, 2005

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TECHNOLOGY

11.21.05

Streaming the Desktop

Streaming tools offer centralized management of desktop software but still allow users to run applications locally. **PAGE 26**



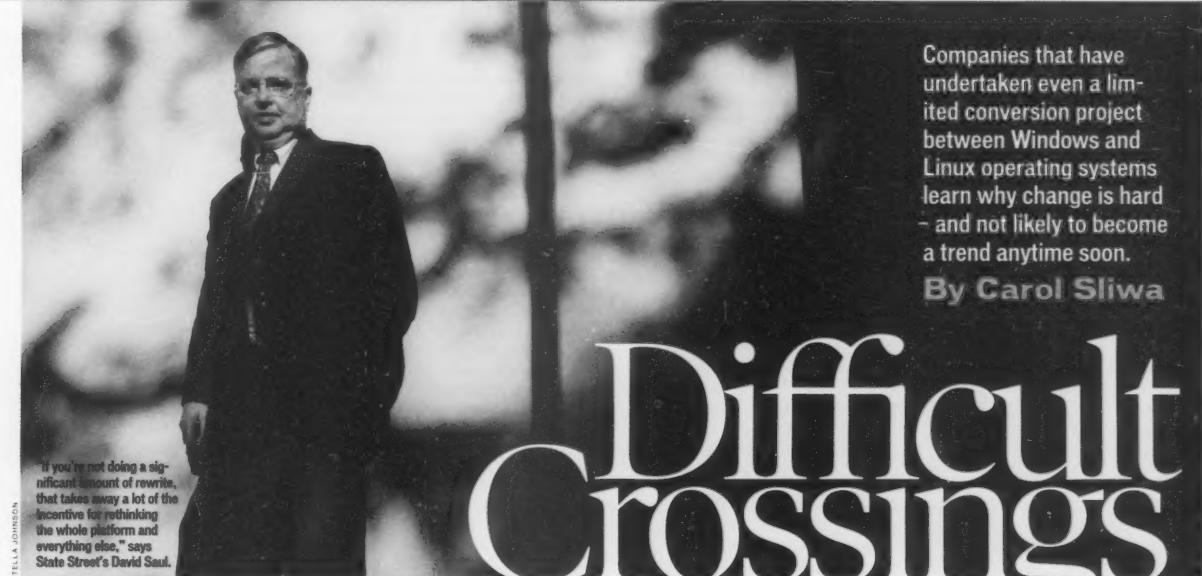
FUTURE WATCH Blue Brain Power

A Swiss research project is using IBM's Blue Gene supercomputer to map the human brain. **PAGE 30**

SECURITY MANAGER'S JOURNAL

An Imaginary DoS Attack Uncovered

A competitor's accusation that Mathias' company launched a denial-of-service attack against it turns out to be overblown. **PAGE 34**



STELLA JOHNSON

"If you're not doing a significant amount of rewrite, that takes away a lot of the incentive for rethinking the whole platform and everything else," says State Street's David Saul.

MICROSOFT CORP. spent a considerable amount of time, money and energy trying to convince corporate IT shops that moving from Windows to Linux servers wouldn't make sense — but at least for now, it's not clear it had to bother.

The heaviest users of the open-source operating system came from the Unix world, where the migration decisions were much easier because Linux environments are similar, skill sets transfer well, and developers can keep the same tools. Financial institutions especially also relished the chance to save substantial sums of money by moving to commodity hardware.

Yet even that group isn't abandoning Unix. Organizations don't walk away from years of investment, says Dan Kusnetzky, an analyst at IDC. The research firm's studies show that companies generally bring in Linux alongside

their Unix servers, he says.

Fidelity Investments, for example, moved some of its Oracle databases from Sun Solaris boxes to Intel-based Linux servers because it enabled the company to merge database instances and reduce database licenses, according to Donald Haine, the former CIO and now a venture partner at the Boston-based financial services firm. But Haine predicts that the transition to Linux may slow now that new capabilities in Solaris 10 will enable Fidelity to achieve the server consolidation it seeks in its Sun environment.

"Why should I take the risk of moving some fairly critical applications when now I can do what I want to do?" Haine says. "I've had a huge investment in my [Sun-based] applications, and people get nervous when you move onto a new platform."

With even Unix users cautious about making a large-scale switch, it's not surprising to find that it's more difficult to ferret out IT shops that have made

a major shift from Windows to Linux. Migrations from Windows to Linux happen on a limited scale with new Web applications. But they're hardly commonplace.

"Once a server application is up and running, it's very unusual for it to be repurposed," says Jonathan Eunice, an analyst at Illuminata Inc. "It's almost never done, and that's true of Windows to Linux and Linux to Windows."

The rare cases in which companies did migrate a Windows-based system to Linux, or vice versa, illustrate why such moves aren't going to turn into a hot trend anytime soon. The problem isn't just the hard work and the differing skills and development tools that are needed. The old adage, "if it ain't broke, don't fix it," tends to rule.

A Case in Point

State Street Corp. undertook a Windows-to-Linux project when it wanted to beef up the functionality of an internally developed fund administration

Companies that have undertaken even a limited conversion project between Windows and Linux operating systems learn why change is hard — and not likely to become a trend anytime soon.

By Carol Sliwa

Difficult Crossings

WINDOWS-TO-LINUX MIGRATION BARRIERS

Different SKILL SET required to maintain environment

Different PROGRAMMING ENVIRONMENTS AND OPERATIONAL TOOLS

EXPENSE and EFFORT required to change

INTELLECTUAL PROPERTY concerns

You have to stick to your core competencies.

and that's where our talent lies right now.

STEPHEN SHAFFER
DIRECTOR OF SOFTWARE SYSTEMS,
INDEPENDENCE AIR

application. The Boston-based financial institution also wanted to enable more employees to use the application, which collects data from a variety of sources, to prepare reports for outside customers. To add the new capabilities, the IT department determined that it would need to change the front-end user interfaces and redesign the database for the Windows-based application, which used Microsoft's Access and SQL Server databases.

State Street tends to view its IT landscape from the standpoint of scale. Mainframes, Unix and Linux are favored when the company plans to run the application at an enterprise or global level. Windows is typically the choice for smaller applications, when integration with the desktop environment is an important criterion or when the company won't have the resources to provide local support, says David Saul, a senior vice president in the office of IT architecture at State Street.

Since the fund-administration application was about to undergo a substantial rewrite, State Street figured it was a good time to move to IBM's DB2 for added scale and functionality. Shifting to Linux rather than Unix allowed the company to reuse some of its Intel-based hardware, at least on the development side, Saul says. Plus, State Street had performance and operational tools for its DB2 environment. Those types of tools "really weren't there at the time for SQL Server," says Saul. They're also lagging for Linux, but since the fund-administration application isn't transactional, those were less significant issues, he says.

"Given the business we're in, we do a lot of monitoring and auditing. From a security point of view, we make sure

that people have appropriate access to the database and the operating system. So we bought and built a lot over time to do that," says Saul.

State Street gave Microsoft plenty of opportunity to keep Windows in the running, according to Saul. Microsoft even put on a workshop to show how the application could be redesigned to scale better. But the database ultimately became the critical factor in the decision, and the financial firm sided with IBM and its "class of the industry" DB2 optimizer, he says. Microsoft's upgrade to SQL Server 2000 was still in the works at the time.

"In our view, in this application, DB2 was a better choice as far as the scaling and the capabilities. It's a bit more forgiving because of its optimizer. When it develops its database plan to do its join, it does a better job than SQL Server," says Saul, although he does note that performance can vary by application based on how well the developer writes to SQL Server.

State Street rewrote the fund administration application in Java and redesigned the database, saving only the basic process flow of the original application. The rebuilt application went into production nearly a year ago.

In the coming months, the company plans to apply its analysis to a few more applications, including a mix of Windows- and Unix-based applications that are due for a significant rewrite. "If you're not doing a significant amount of rewrite," Saul says, "that takes away a lot of the incentive for rethinking the whole platform and everything else."

Saul says he can't see much point in moving infrastructure such as a mail server built on top of Microsoft's Active Directory to Linux. He says he'd be

"ridden out of town on a rail" if users lost access to their mail folders. "One of Microsoft's major strengths is the degree of integration between the Web server and the applications," Saul says.

Even Ed Anderson, vice president of global product marketing at SUSE Linux distributor Novell Inc., says the company doesn't see much Windows-to-Linux conversion. "We've seen Linux servers being installed alongside the Windows servers," he notes.

Linux to Windows

Martin Taylor, Microsoft's general manager of platform strategy, says he has seen scattered cases of companies that tried Linux servers for their Web sites but decided to replace them with Windows boxes. That tends to happen if users encounter integration issues or spend more money for support or put more effort into maintenance than they expected, he says.

Hong Kong-based Tommy Hilfiger Corp. had three small informational Web sites that outside consultants built to run on Linux. When the company needed to revamp its Web presence, it faced the choice of staying with the open-source operating system or moving to another platform. CIO Eric Singleton says he was laying out a three-to-five-year road map for a Microsoft .Net-based environment at the time, and it made no sense to have the Web site as the only application on Linux.

"It was about a business decision based upon a bigger view and a personal belief that a model with more governance and process and structure — what Microsoft represented — was simply a better thing to do for the company than an open-source, less-governed model," Singleton adds.

Tommy Hilfiger is also in the process of phasing out its IBM AS/400-based wholesale, warehouse management, accounting, retail and back-office systems in favor of Windows-based applications, according to Singleton.

Turning Back to Windows

Dulles, Va.-based FLYI Inc., which flies under the name Independence Air Inc., has always been a Windows-centric organization. About 95% of its 105 servers are Windows-based, according to Stephen Shaffer, director of software systems. But the airline's reservation provider recommended Linux for its new Web site, so the company hired outside consultants to do the work.

Independence Air had hoped there would be a knowledge transfer from the Linux consultants to its Windows-focused IT staff so it could gain the

skills to service the site and add functionality in Java. That didn't happen. "We went live, and we were still heavily reliant on the consultants to maintain the site," says Shaffer. "We ran into a whole bevy of problems that left us feeling kind of helpless."

Internal staffers struggled to configure Apache Web servers and BEA Systems Inc. WebLogic application servers to handle the load, and the site often went down as they did, says Shaffer. The network operations staffers had no Linux skills either, he adds.

DRIVERS OF LINUX ADOPTION

Initial cost

Ongoing cost of operations

Reliability/availability

Desire to reduce dependency on current operating system vendors

Recognizing that the site would be generating 80% of the company's revenue and that trouble-shooting would be an ongoing problem, Independence Air made the decision "to go back to the Microsoft world," Shaffer says. It had taken six months and \$400,000 for consultants to build the initial site. One consultant and two full-time internal staffers built the Windows-based site in three months, he says.

"You have to stick to your core competencies," says Shaffer. "Right or wrong, we're a Microsoft shop, and that's where our talent lies right now. You really need to evaluate whether moving to another technology in as rapid a time frame as we did is the right thing to do."

Stacey Quandt, an analyst at Aberdeen Group Inc., says she sees users migrate from Linux to Windows only when support is lacking or when they decide to move back to their familiar Windows environments. But that isn't happening much, since so few companies did even limited switching from Windows to Linux.

When Microsoft waged its battle to fight the spread of Linux, it worried most about new applications creeping into an organization, Quandt says. The reality, she says, is that "it's just hard to change." ▶

KEY LINUX WORKLOADS

- Web servers
- Firewalls
- Databases
- DNS, DHCP
- Application and software development
- Custom business applications
- File and print servers

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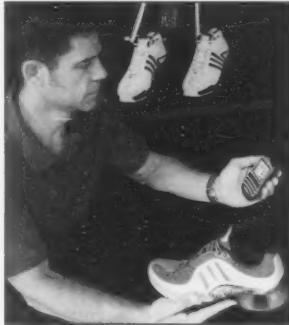
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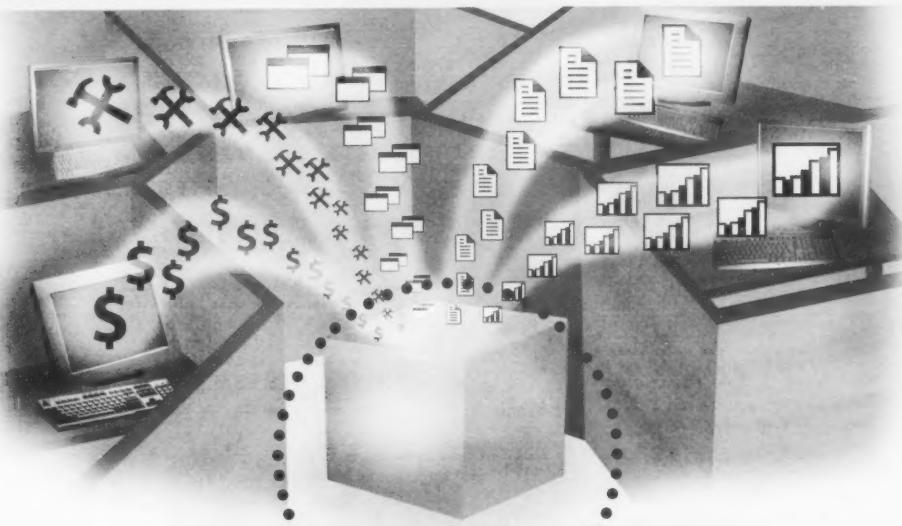
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Kantrowitz, CEO of Neoware Systems Inc. in King of Prussia, Pa.

Vendors of just-in-time streaming products fall into one of two categories. Companies such as Ardence offer products that stream complete disk images that include the Windows operating system and a predetermined application set. Companies like AppStream Inc. stream only the applications but offer more granular control over application delivery.

Still other vendors, including Softricity Inc. and Stream Theory Inc., take application streaming one step further by creating a self-contained virtual environment in which each streamed application can run. The virtualization layer traps and isolates registry entries, Dynamic Link Libraries (DLL) and other changes the application wants to make to Windows settings. This avoids application conflicts and eliminates the need for administrators to do regression testing and build images for every combination of applications.

Since applications are delivered centrally, software streaming products allow application licenses to be tightly controlled. "The idea is to create an environment where applications can be made available on devices in a very managed, controlled way and then removed from the device so they can be used somewhere else," Kusnetzky says.

At Time Warner Cable, Shetty says, streaming technology lowered desktop support costs by reducing help desk calls resulting from malware problems. "Now, when they get [a virus], they just reboot and get a new image," he says.

Continued on page 28

AUTOMATED SOFTWARE distribution has been a hot topic in desktop management, but the next big thing is on-demand software delivery. While ASD tools help control desktop support costs by making software installations consistent, the on-demand software-delivery technologies go one step further: They can virtualize the local installation and stream the applications — and even the operating system — from a central distribution server in real time.

Sanjeev Shetty, director of IT at Time Warner Cable in Greensboro, N.C., is using streaming technology to manage the desktop application environments in the company's 300-seat call center. Shetty says he considered thin clients but couldn't justify the back-end server farm investment required to support an architecture for Microsoft Terminal Services or Citrix Systems Inc.'s Presentation Server (previously MetaFrame).

Instead, he installed Ardence Desktop from Ardence Inc. in Waltham, Mass. It creates and stores complete system images on a server and streams portions of the operating system and applications to desktop users at boot-up. "It didn't require a large investment in server infrastructure and provided immediate ROI," Shetty says.

Application streaming technology takes advantage of the fact that LANs are getting faster — and that most applications require only a small fraction of the total program code in order to run. The minimum needed can be as little as 10% to 15%, says Dan

STREAMING THE DESKTOP

APPLICATION STREAMING CREATES A VIRTUALIZED DESKTOP THAT CAN BE MANAGED CENTRALLY, YET OFFERS THE SPEED OF LOCAL EXECUTION.

BY ROBERT L. MITCHELL

Kusnetzky, an analyst at IDC.

Once the user is up and running, additional application and operating system components are fetched as needed. After the initial launch of a program, some products allow portions of the applications to reside in a local cache for faster subsequent loads. The result:

Applications can be maintained and updated on central servers but run on the end user's local machine. The issue of managing locally installed programs on individual desktops is eliminated.

"This concept is new. It's part of the trend toward on-demand computing and utility computing," says Michael

WE'D LOVE TO CATCH YOUR VIRUS.

Seriously.

Here's why. E-mail security has gotten out of control. Viruses, malware, spam, spyware, pornography, updating, user licensing. It's an expensive and endless headache. And the stakes are getting higher every day. Today, 8 out of 10 businesses get hit! And e-mail viruses alone are responsible for more than \$10 billion in lost productivity.¹

It's time this problem got solved. Not just for big businesses, but for any size business. Not just for this platform or that. And not by making already overworked IT people run CDs from PC to PC during virus frenzies. It's time for something new.

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Continued from page 26

Centralized management also made upgrades easier. A typical upgrade to the company's Avaya Call Center software, which used to take 75 hours to test and roll out, is now completed in about one hour, he says, because fewer images are needed and the software doesn't have to be installed on each machine.

Time Warner's PCs support PXE boot technology, which lets the machines remote-boot directly from the system image that the Arden server delivers. PCs boot over the Gigabit Ethernet network faster than they did when running locally, Shetty says, and bypassing the local disk drive has saved on support costs. "Eighty percent of our trouble tickets are hard-drive-related," he says. The downside, he adds, is that building the images used for streaming can be time-consuming.

Shetty doesn't use Arden on 350 machines outside of his call center because those don't share a common application set. "You'd have a ton of images for those," he says.

Newware's Image Manager attempts to reduce the number of images required by creating a virtualization layer that allows a single image to run on different systems. "We have a virtualized driver model that lets the operating system boot regardless of what the hardware is," says Newware CEO Michael Kantrowitz. It is limited, however, to only those drivers that are built into Windows. Applications with unique drivers require a separate image. With both products, administrators still must create different images for each desired application set.

Speed and Flexibility

At Westgate Resorts Ltd., systems administrator Brett Lazenby builds the baseline system images and streams only the applications. He is halfway through deploying AppStream to more than 4,000 PCs at the Orlando-based time-share company.

"We liked how the user could start using [the application] before the install even finished," Lazenby says. Although preparing applications is time-consuming, application streaming makes updates much faster, he says, since users receive the update the next time they log in.

"It takes less than a minute before they can use the [updated] applications. That's definitely better than having someone walk around to 2,000 PCs," he says.

Managing multiple images is impractical at Suncor Energy Services Inc., which has 1,600 applications on some

4,500 PCs. Between 75% and 85% of those applications are now delivered by way of SoftGrid's SoftGrid server.

SoftGrid includes a "sequencer" utility that encapsulates all of the system changes that the application's installation routine makes and places those in a semi-isolated virtual environment on the PC, along with the installed application image. Applications are delivered automatically based on policies set in Active Directory and are removed when the session ends.

Suncor's goal is a "zero-touch workstation," says IT support analyst Derrick Weiszhaar. Because applications are streamed and virtualized, users can log into any machine and receive their own applications. "I can sit at any desktop in the company and get all of my apps as soon as I log in," Weiszhaar says.

Software updates that used to take a month to deploy are now completed in one day. Weiszhaar doesn't need to first perform regression testing on the application, produce a distribution package and test it. "Within five minutes we can deploy it to every single person in the company," he says.

SoftGrid doesn't work for all applications, however. In some situations, virtualized applications won't interoperate unless they're either packaged together or one is installed locally, Weiszhaar says. Because of interapplication dependencies, he doesn't virtualize Microsoft Office. (SoftGrid co-founder and Vice President David Greshler says SoftGrid's latest release supports all application components except for NT services.)

Determining application dependencies and sequencing apps to meet Suncor users' needs also required extra work, Weiszhaar says. "For each application, you have to ask, 'What am I losing, and what am I gaining?'" he says.

Stream Theory claims to offer application environment virtualization that's more flexible. AppExpress lets the administrator specify which DLLs or other application components can be virtualized and which need to talk to one another, says Chief Technology Officer Arthur Hitomi. The software won't, however, allow incompatible versions of an Oracle or Office application to run simultaneously, as SoftGrid does.

ON-DEMAND SOFTWARE STREAMING FOR DESKTOPS

WHAT IS IT?

Desktop management software that supports just-in-time streaming of the desktop operating system and/or applications from a centrally managed server. Applications execute locally and may run from a cache after the initial load to speed performance.

PROS:

- System software and/or applications can be managed centrally while programs execute locally.
- Because many Windows applications can run with as little as 10% to 15% of a program loaded, apps can be up and running quickly, before streaming is done.
- Most products can monitor application usage for license compliance.
- Application streaming products reduce the need to create multiple images that

contain several different application sets.

- Some products virtualize each application's configuration settings, which avoids interapplication conflicts.

CONS:

- Technologies are relatively new, and they're changing rapidly.
- Packaging applications for streaming can be time-consuming.
- Increased competition with the entry of larger vendors could change vendor landscape.

Like other users of application streaming, O'Brien says

packaging applications is the challenge. So far, he has 150 available on demand and 10 more planned. "We have so many applications that we don't have time to understand how all of these work," he says. Yet that's exactly what needs to be done for each one before it can be sequenced. "How the application gets stored and accessed, [whether] you want .ini files copied out or not — you have to know or learn those things," he says.

While approaches to application streaming vary, in the end all vendors attempt to deliver applications to the end device in a managed, secure way, says IDC's Kusnetzky. While SoftGrid's offering is the most mature, administrators will need to examine each approach carefully before making a decision, he says. "There may be six or seven ways to do it. That's got to be very confusing for an organization trying to decide what is the best solution for their needs."

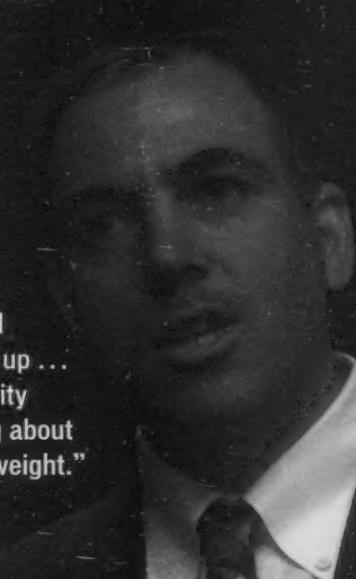
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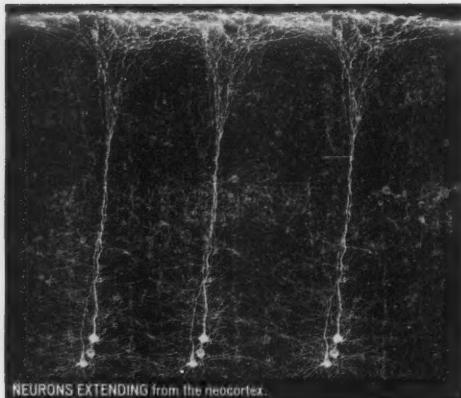


“Computerworld’s approach of using real-world testimonies is really the key. If I wanted a vendor opinion, I’d call a vendor up ... so when I see my peer talking about security challenges and when I see my peer talking about technology innovation, it has much more weight.”

Steve Bandrowczak, VP CIO, DHL Express

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Blue Brain Power



NEURONS EXTENDING from the neocortex.

FUTURE WATCH

IBM project uses supercomputer to model the brain. By Matt Hamblen

THE HUMAN brain has 100 billion neurons, nerve cells that enable us to adapt quickly to an immense array of stimuli. We use them to understand and respond to bright sunlight, a honking horn, the smell of chicken frying and anything else our sensors detect.

To better understand some of those responses, researchers in Lausanne, Switzerland, recently launched an ambitious project called Blue Brain, which uses IBM's eServer Blue Gene, a supercomputer capable of processing 22.8 trillion floating point operations per second (TFLOPS). Blue Brain is modeling the behavior of 10,000 highly complex neurons in rats' neocortical columns (NCC), which are very similar to the NCCs in a human brain. The NCCs run throughout the brain's gray mat-

ter and perform advanced computing. They are 0.5mm in diameter and 2mm to 5mm in height and are arranged like the cells of a honeycomb.

The first objective of Blue Brain is to build an accurate software replica, or template, of an NCC within two to three years, says Henry Markram, the principle researcher on Blue Brain and a professor at Ecole Polytechnique Federale de Lausanne (EPFL). That first template will be modified for NCCs found in different brain regions and species, and then all the NCCs will be replicated to build a model of the neocortices of different species, he says.

Such models will shed light on how memories are stored and retrieved, Markram says. "This could reveal many exciting aspects of the [brain] circuits, such as the form of memories, memory

capacity and how memories are lost."

The modeling can help find vulnerabilities in the neocortex, which is useful because that's where brain disorders often originate. "We may also be able to work out the best way to compensate and repair circuit errors," Markram says. "The model could be used to develop and test treatment strategies for neurological and psychiatric diseases," such as autism, schizophrenia and depression, he adds.

Having an accurate computer-based model of the brain would mean that some major brain experiments could be done in silicon rather than in a "wet" lab. A simulation that might take seconds on the supercomputer could replace a full day's worth of lab research, Markram estimates. Ultimately, simulated results of brain activity could be matched with recorded brain activity in a person with a disease in order to "reverse-engineer" the circuit changes in diseases, he says.

The real value of a simulation is that researchers can have access to data for every single neuron, adds IBM's Charles Peck, head of the Blue Brain project for IBM Research.

Although science "knows a lot of details about the brain, we do not know how the parts fit together and how they are related to thought and learning and perception," he says.

Peck says Markram's team will take measurements from a dozen neurons that have been sliced from rat brains and mounted on a chip. The research will examine the physical structure and the electrical properties of each neuron and how neurons affect one another.

Peck says that a model of multiple NCCs is still far from a model of the whole brain. "Once we have modeled the neocortex, we will have to include models of other brain regions, such as the basal ganglia, hippocampus, cerebellum and so on," he explains.

The Blue Gene supercomputer was installed in July, and the first simulations were run in August, with a simulation of 25,000 simple neurons that took just 60 seconds. "This was just not possible before, and even smaller

networks of 1,000 neurons would take weeks to run on a cluster, so this is truly a quantum leap in size and speed," Markram says. Future simulations of 10,000 complex neurons will take much longer.

A special room was built for Blue Gene at the EPFL, and the machine sits on top of a large room that holds the cooling equipment and computer cables, Markram says. Ice-cold water from Lake Geneva is pumped in to support the cooling system. The actual computer "takes up only a small space," Markram notes, and is only about the size of four refrigerators running on four racks.

Blue Gene is an 8,096-processor supercomputer, and it will model one to 10 neurons per processor. The computer could allow simulations of as many as 100 million simple neurons, which is about half the number of neurons in a rat brain. A PFLOPS Blue Gene, which IBM says is several years away, would make it possible to simulate nearly a billion simple neurons, Markram says. "But improvements in processing speed and memory could mean the entire human brain could be simulated within a decade," he adds.

IBM's Ajay Royyuru, head of Blue Gene computing as applied to life sciences, says the supercomputer's role is another indication that "biology [has become] information science."

"The scale of this computing will reveal interesting things in biology. We need that scale to get at the complexity that biological systems have," he says. And the

trickle-down effect from Blue Brain to other computing projects in science and industry will be enormous, he adds.

For example, Markram says, ASIC designs that emulate neuron network behavior might be developed for use in information processing in intelligent devices. And, more generally, he says that Blue Brain will teach lessons about real-time data processing, as opposed to off-line processing.

"There's plenty ... we can learn and bring back," Royyuru says of the Blue Brain project. ▶

Wetware, Software and Hardware

Gray Brain
100 billion = neurons in a human brain
300 million = neurons in an average rat brain
1,300 grams = adult human brain weight
90 grams = adult mouse mouse brain weight

Blue Brain
22.8 TFLOPS peak processing
8,096 CPUs at 700 MHz (downgraded to handle massive parallel processing)
Two processors and four floating-point units for a core node
256MB to 512MB memory
Linux and C++ software
100 kilowatts power consumption

Blue Brain is a prototype, but production machines that are similar cost "hundreds of millions of dollars," IBM says.

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Geek's Garden

A STROLL THROUGH THE TECHNOLOGY LANDSCAPE

Silicon Chip Carries Light, Promises Photonic Memory

IBM RESEARCHERS have created a silicon chip that can carry light and even slow it down. The chip demonstrates some of the essential techniques for creating high-speed photonic memory, which could eventually make electronic memory obsolete in optical communications networks.

It's more efficient to communicate using photons than electrons, because photons don't interact easily with stray electronic and magnetic fields or with one another. Today, most of the world's communications networks rely on light and the optical fibers that carry it. How-

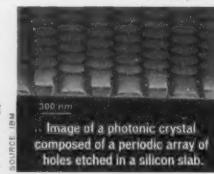


Image of a photonic crystal composed of a periodic array of holes etched in a silicon slab.

ever, photons are hard to store. Since the signals in any communications network must be stored while they are amplified and routed, this can be done only by converting light into an electronic signal, processing it and then converting it back again.

Techniques to slow light could be used to buffer optical data in a way that's analogous to the way electronic memory works. In 1999, Harvard University researchers slowed light to the speed of a bicycle by passing it through a cloud of cold atoms. Other scientists have created tiny tunnels called waveguides that can

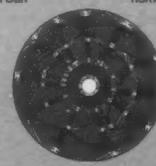
SOURCE: JAMES CRUTCHFIELD, UNIVERSITY OF CALIFORNIA, DAVIS

GROVES OF ACADEME

UCSD Scientist Computing a Theory of Theories

A UNIVERSITY OF CALIFORNIA, Davis researcher received one of the most powerful computers of its type as a gift from Sun Microsystems Inc., and he's using it to construct simulations called cellular automata and investigate how theories are developed.

The computer that Sun donated to professor James Crutchfield is known as Colony. It has 14 motherboards that have 64 chips each, and each chip contains 64 32-bit processors, for a total of 57,344 processors. But what makes Colony special is the speed of the connections between its processors – it can run simulations thousands of times faster than conventional machines.



This graphic shows the results of a circular "computational automaton" computer model after 100 cycles.

A simple cellular automaton would be a lattice of cells, each of which can be in a set number of states, such as black or white, one or zero. Colony can run very large lattices and also run models in three or four dimensions, making for more powerful and realistic models, says Crutchfield. He has developed a new theory of how cellular automata can spontaneously organize into miniature universes with their own unique structures. The ultimate goal is to understand how structure can appear at different levels of the universe, how the levels are related and how scientists (and computers) can automatically construct theories from data.

steer photons through otherwise opaque materials such as silicon. These "nanophotonic" devices can be fabricated in a manner similar to the way electronic chips are made, allowing for relatively low-cost mass production.

Now scientists at IBM's T.J. Watson Research Center in Yorktown Heights, N.Y., have combined these two techniques. The result is a silicon chip carved with photon waveguides in which the photons can be slowed by a factor of 300 by heating the waveguide to change its optical properties. Such a device could synchronize data streams by slowing some streams, allowing others to catch up.

Barriers to commercial use of the photonic chips include the length of time it takes to heat the waveguides. Moreover, the waveguides have to be carved with an accuracy that's just barely possible using today's techniques.

Japanese Company Revs Fiber-Optic Speeds

The Kansai Electric Power Co., Japan's second-largest electric utility, says it has developed technology allowing the transmission of a two-hour movie in 0.5 sec. Kansai said it achieved the transmission speed of 1Tbit/sec. using fiber-optic cables on power-transmitting steel towers. That's more than 100 times faster than intercity data transmission systems now in use, a Kansai spokesman said. The technology may not be put to commercial use until 2010 or later, he added.

Setting the Protocols for an Age

THIS MONTH, TCP/IP'S DEVELOPERS, ROBERT E. KAHN AND VINTON CERF, added the President's Medal of Freedom to their collections of accolades. It's probably no exaggeration to say that the two men made the Internet Age possible by creating the software protocols that tie together all the networks that make up the Internet.

The Internet Protocol suite had its origins in work done by the Defense Advanced Research Projects Agency in the early 1970s. After building the pioneering Arpanet, DARPA started work on a number of other data-transmission technologies, including packet radio and satellite links. Wanting to be able to communicate across them, Kahn, who was working at DARPA, recruited Cerf of Stanford University



Vinton Cerf

DIFFERENCE ENGINES

and the University of California, Los Angeles to work with him on the problem of connecting multiple networks using different access protocols.

By the summer of 1973, they had worked out a fundamental formulation in which the differences between network protocols were hidden by using a common internetwork protocol, and instead of the network being responsible for reliability, as in the Arpanet, the hosts became responsible. Cerf has said that their work was influenced by that of Hubert Zimmerman and Louis Pouzin, the designer of the Cyclades network.

With the role of the network reduced to the bare minimum, it became possible to join almost any networks together, no matter what their characteristics were, thereby solving Kahn's initial problem. A computer called a gateway (later known as a router to avoid confusion with other types of gateway) is provided with an interface to each network and shuttles packets back and forth between them. One popular saying has it that TCP/IP, the

eventual product of Cerf and Kahn's work, can run on a string between two tin cans.

TCP/IP is named after the Transmission Control Protocol and the Internet Protocol, which were the first of the suite of protocols to be defined. The idea was worked out in more detail by Cerf's networking research group at Stanford in 1973-74. The early networking work at the Xerox Palo Alto Research Center, which produced the PARC Universal Packet protocol suite, was also a big influence, since scientists moved between PARC and Stanford.

DARPA agreed to fund development of prototype software, and after several years of work, the first somewhat crude demonstration of what had by then become TCP/IP occurred in July 1977. The first TCP/IP WAN was launched in 1984, when the National Science Foundation constructed a university network backbone that would later become the NSFNet.



Robert E. Kahn

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An Imaginary DoS Attack Uncovered

A complaint from a competitor is a diversion from our security manager's strategic objectives for the year. By Mathias Thurman

THE OTHER day, our CIO forwarded me an e-mail from our general counsel's office, saying that one of our competitors was accusing us of what amounts to a directed denial-of-service attack.

The complaint was that we were making excessive requests to the competitor's public Web site, hitting its performance so hard that customers were unable to access it. The IP address involved in this attack did indeed belong to us; I recognized it as one of our proxy addresses. You see, all outbound connections made from inside our company are translated to a single public IP address controlled by our proxy servers.

My first thought was that someone had been spoofing our IP address, but first I had to check to see if any of our internal resources were responsible for any of the suspicious activity. In order to do that, I simply had one of my engineers search through the logs of our proxy server for the destination IP address.

Search Results

Surprisingly, the search led to the identification of a single IP address within our company. The dates and times matched up almost to the second with the logs provided by our competitor's network administrators. It was obvious now that one of our employees had been making connections to our competitor's Web site.

Next, we used the NBT-STAT utility within Windows to enumerate the machine

SECURITY MANAGER'S JOURNAL

name and the media access control (MAC) address. These are two important pieces of information in the incident-response process. Machine names in our company are set to the employee's log-on name, a method that usually makes it easy to identify which resource belongs to whom.

The MAC address is useful because I can have one of our network engineers search the switches' CAM (content addressable memory) tables for the MAC address. That would tell us the switch port involved, and we could then trace back to the office jack where the PC that was involved is attached.

In addition to identifying the employee tied to this IP address, we put a filter on our intrusion-detection system to watch for connections he made. What we observed seemed to be an automated connection from his desktop to the competitor's site every hour. After some discussion with our legal department and human resources, I ended up giving this guy a call.

Turns out his job is conducting competitive analysis. He uses a tool that lets him monitor all of our competitors' Web sites for changes to content. So, for example, if one of our

Our competitor... decided to blame the problems on us.

competitors launched a new product or had a major news release, we would pick this up within an hour of it appearing on the competitor's Web site.

Before asking him to stop using this tool, I asked one of our network engineers to pull traffic statistics. I wanted to know whether this one guy's hourly activity could have been responsible for consuming our competitor's bandwidth. It was determined that the bandwidth generated was negligible and that the activity was polling only eight Web pages per hour, which amounts to nothing.

Our internal conclusion was that our competitor must have been having some bandwidth issues and, having observed that our company — one of its competitors — was making regular connections to its site, decided to blame the problems on us.

I wrote up the entire incident and left it at that. It's been almost two weeks, and we've heard nothing from the company in question.

Confidential Matters

After taking care of the phantom DoS incident, I attended to another pressing matter: designing a tool to help users classify information.

I have discussed in other columns how I am being called upon to help the company safeguard its intellectual property. One of my strategic objectives is to develop a tool that will let employees quickly and easily determine the level of classification appropriate to a particular document, be it a spreadsheet, a computer-aided design diagram, an e-mail or something else.

Although this objective was developed before I was hired, my year-end bonus will depend on whether I've met my

various strategic objectives. As you can imagine, then, this tool is one of my priorities.

I've been working with my counterpart on the physical security side of the business, who reports to our general counsel and is responsible for our intellectual-property protection program. So far, we've decided to use the data classifications of "Internal Use Only," "Confidential" and "Confidential — Special Handling." We've thought about adding another classification for documents that are public or used outside of the company, but we're worried that if we have too many classifications, they will lose their effectiveness.

Our goal is to develop a tool that will let users select radio buttons pertaining to data content, the ramifications should the information contained in the document be compromised, and other information. Then the data classification should be automatically determined. Tied in with this will be links to information regarding preconfigured templates, watermarks, special handling instructions and, eventually, our anticipated digital rights management tool.

At the end of the day, this document-classification tool is just a tool. We need to combine its use with policy-awareness training and periodic audits, with the hope that our evangelizing will eventually change the behavior of employees who today have no concept of data classification.

I've started to develop the tool using Microsoft Excel, and if I am successful, I'll probably outsource its conversion to a Web-based application, unless of course any readers out there have recommendations.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum:

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To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG

Security Bookshelf

Securing Storage: A Practical Guide to SAN and NAS Security, by Himanshu Dwivedi (Addison-Wesley Professional, 2005).

Storage is often overlooked from a security perspective, though the data we're trying to protect usually ends up on some form of network storage device.

This book begins by helping the reader understand storage concepts and their inherent weaknesses and security issues before recommending how to store data securely. Especially interesting are the chapters on domain-hopping attacks and securing network-attached storage. Highly recommended.

— Mathias Thurman



Hold Found in Vendors' VPN Gear

Virtual private network products from a variety of vendors, including Cisco Systems Inc. and Juniper Networks Inc., are vulnerable to a denial-of-service attack because of a bug recently discovered by researchers at Finland's University of Oulu. The flaw affects a component of the IPsec protocol used by VPN software and hardware to securely exchange data over the Internet.

Sober Variants Popping Up

More variants of the mass-mail Sober worm are making the rounds of the Internet and could infect Windows-based computers, antivirus firms Kaspersky Lab and Symantec Corp. warned last week. Thus far, the variants present a low risk and haven't been widely distributed.



Find tools and guidance to defend your network at microsoft.com/security/IT

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- **Learning Paths for Security:** Take advantage of in-depth online training tools and security expert webcasts organized around your specific needs. Then test your security solutions in virtual labs, all available on TechNet.

Microsoft

BRIEFS

Advantage Database Server Released

■ iAnywhere Solutions Inc., a subsidiary of Sybase Inc. in Dublin, Calif., released Advantage Database Server 8.0. Advantage is a client/server data management system targeted at Borland Delphi and C++ Builder developers. Version 8.0 includes the newly designed Advantage Data Architect module. Pricing starts at \$645 for a five-user license. An unlimited user license is \$7,870.

DYS Offers Analytics For Exchange

■ Messaging infrastructure vendor DYS Analytics Inc. released Version 5 of E-Mail Control for Microsoft Exchange. Enhancements include improved data collection performance and a faster results display for administrators. The software, available now from Wellesley, Mass.-based DYS, starts at \$3,495 per installation.

PathScale Launches InfiniBand Adapter

■ PathScale Inc. has released InfiniPath HTX, an InfiniBand adapter. The vendor also released Version 1.1 of its InfiniPath software, which now supports the OpenIB Gen 2 software stack and is designed to support application scaling and performance on InfiniBand-based Linux clusters, according to Mountain View, Calif.-based PathScale. The 1U-high InfiniPath HTX InfiniBand adapter will be available next month and is priced at \$795.

QAD Announces Production Scheduler

■ Carpenteria, Calif.-based manufacturing software maker QAD Inc. announced Production Scheduler. The Web-based application, part of the QAD Global Enterprise Edition product suite, delivers production information in a single screen to allow manufacturing personnel to react to demand fluctuations. Pricing for the software, due to ship next month, wasn't disclosed.

ROBERT L. MITCHELL

Trustless Computing

FLASH back to 1970. A trainload of musicians that includes such legendary performers as the Grateful Dead and Janis Joplin embarks on a rolling concert tour across Canada that is later documented in the film *Festival Express*. The tour ends in financial disaster after fans riot, insisting that the music should be performed for free. In a sad epitaph to the '60s, Grateful Dead guitarist Bob Weir is seen insisting to a fan that musicians deserve to make a living, too.

Fast-forward to 2005. Sony BMG Music Entertainment is widely criticized after its Extended Copy Protection (XCP) technology for music CDs turns out to look a lot like spyware. The program is supposed to limit the number of times a user can copy music. But the software surreptitiously installs itself when the user plays a protected CD and uses rootkit technology to hide itself from detection. XCP is also difficult to remove — just like spyware. Allegations arise that the program establishes a clandestine link back to a Sony Web site. Users worry about a possible invasion of privacy. Then malware appears that leverages XCP for more nefarious purposes. Sony then decides to pull back the technology.

What created this train wreck? Times have changed, but attitudes haven't. In the Internet Age, where the mantra is "Information wants to be free" and illegal file-swapping is rampant, there's more than enough blame to go around. Mechanisms to provide controls for acceptable use are wildly unpopular, and millions of people continue to steal content with a sense of entitlement. One rationale is that content providers should abandon old models and find new ways to make money. This is, after all, the new economy. What bunk.

Meanwhile, promoters of digi-



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tal rights management schemes continue to make one public relations blunder after another.

Under DRM, the consumer should have certain rights but should expect to bargain some of those away to get certain benefits, says Roger Kay, an analyst at Endpoint Technologies Associates in Concord, Mass. But, with a nod to Sony's dilemma, he adds, "that's supposed to be a voluntary relationship."

The DRM discussion has descended into an acrimonious debate over who controls the end user's machine. Users worry that authentication schemes will be abused by allowing content providers not just to determine whether you can view content, but also to track the use of that content, to lock in the choice of software required to consume that content, or even to control which content the user can access in the first place.

Content providers want to "trust, but verify" that users are legitimate. Users fear loss of control. Unfortunately, that fear of DRM was magnified with the discovery last week of Trojan malware that exploits XCP copy-protection technology to cloak itself while allowing unauthorized remote access to the infected computer.

In a recent meeting, the Trusted Computing Group Advisory Council considered whether it should divorce

its security activities from DRM efforts. "One debate in the committee was, do we embrace DRM fully or say, 'Look, it's not our business,'" says Kay, who is a member of the advisory council. Increasingly, DRM and the trusted computing concept are becoming inseparable in the minds of users as well.

Suspicion Runs High

Currently, the organization promotes its initiatives as a way for users to secure their computers against Trojan horses, viruses, rootkits and other malware. But should Trusted Computing Group initiatives be linked to DRM, which cedes some control over the end user's machine to content providers?

In the past, privacy advocates have criticized efforts to leverage a unique identifier embedded in Intel processors for use in DRM schemes because those could be used to track the use of programs or content to individual users' machines. Suspicion runs high.

Going forward, the Trusted Computing Group may find it increasingly difficult to serve two masters.

A move by the organization away from DRM would no doubt be a loss for companies like Sony, which just learned the hard way that a general-purpose desktop computer can't be treated like a PlayStation. On the other hand, the Internet can't continue to function as a black hole for content providers.

"Users have to get used to the idea that even though Napster happened at one time, content isn't there for stealing," says Kay.

Models such as Apple's iTunes service show promise — and demonstrate an increasing willingness by the public to pay for content, given the right economic model. Ultimately, however, it will take the cooperation of users, the PC industry, the consumer electronics manufacturers and content providers to get digital copyrights back on track. ▀

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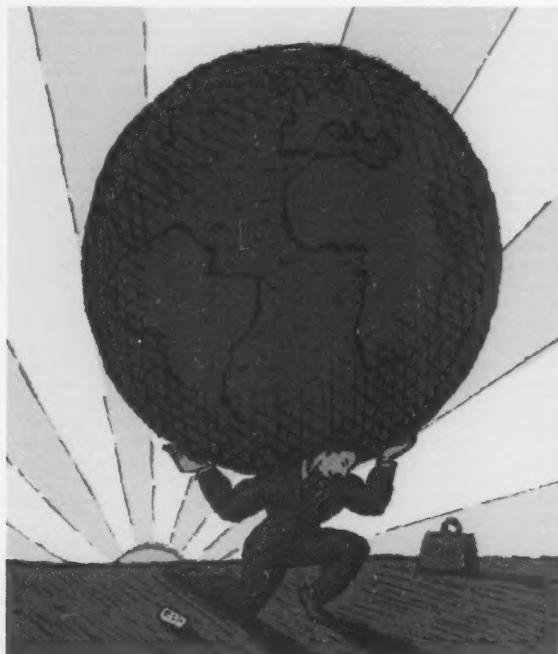
Best-selling business authors John Battelle (left) and Pietra Rivoli talk about the global economy and IT's role in it. Plus, read excerpts from their critically acclaimed books. **PAGE 42**



OPINION

Oil and the IT Recovery

What does the rising price of oil have to do with the resurgence of IT budgets? Plenty, says Barbara Gomolski, and the news is all bad. The only silver lining is that rising oil prices may end up making IT managers into environmentalists. **PAGE 46**



Global CIO

Take everything IT does, then add exponential complexity. BY MARY BRANDEL

PHOTO: DAVID LARSEN

WHEN HE first joined The AES Corp., a power company based in Arlington, Va., George Coulter traveled the world for four months straight, meeting with business and IT leaders in 15 countries.

At Manpower Inc., Rick Davidson conducts twice-a-year, five-to-six-week global "road shows," visiting the major countries in which the organization operates. On a recent day, having just flown to London after half a week in Prague, he was preparing to head to Tokyo before returning to Manpower's headquarters in Milwaukee.

At one point in his career, Jay Crotts at Royal Dutch Shell PLC in London found himself traveling every one or two weeks for 10 days at a time, so that — as he puts it — he was always either preparing for a trip, traveling or recovering from a trip. And there's not an hour of the day or night when Crotts hasn't dialed into a teleconference from home.

Coulter, Davidson and Crotts are all global CIOs. The position is one of the most in-demand and hardest to fill in the IT industry, according to Shawn Banerji, executive director at Russell Reynolds Associates Inc., an executive search firm in New York. "Over the past 18 months, three-quarters of our CIO searches have had an international aspect if not a requirement," he says.

The demand is emanating from multinational businesses, as well as domestic companies looking to expand their worldwide reach. All want to see candidates who can develop a technology infrastructure that supports business initiatives on multiple continents with diverse cultures and very different business norms. They need individuals who can walk the fine line between developing an overarching technology strategy for the entire company with standard applications for worldwide use and respecting the variances that local business leaders need in order to operate effectively. And they need people who are adept at managing IT staffs whose members

speak multiple languages, work in every time zone and follow their own cultural mores. All of this may or may not include dotted-line or full responsibility for country-based CIOs.

These shoes aren't as easy to fill as those of a domestic CIO. "If you have 7,000 employees in the U.S., and you're going through a system change, it's a lot easier than if you had 700 employees in 10 countries," says Steve Bandrowczak, who recently became global CIO at Lenovo Group Ltd., now the third-largest PC company in the world since acquiring IBM's PC business last year. "Just think about having to deliver solutions in Dubai, India, parts of Asia and Eastern Europe simultaneously, versus doing that in similar time zones for users who all speak a single language," he says.

According to Banerji, the global CIO job requires a person who's an exceptionally good listener with a high degree of empathy and tolerance for other people, in addition to a genuine interest in learning about other cultures. It helps to have spent a considerable portion of one's career in a global-company environment, perhaps even managing large project teams in various locations worldwide. But at the very least, Banerji says, the candidate should have worked in a complex, widely distributed, multisite, process-intensive business.

And — don't kid yourself — candidates need to be willing to travel, and travel, and travel. "We've seen people take an out-of-state job and not even bother to move their families," Banerji says. "What's the point of uprooting their families' comfort zone and support base if they're never [at the corporate location] anyway?"

Sometimes the cost of travel is too high. Plenty of otherwise good candidates leave the global CIO track because of the strain on family life, Banerji says.

The overarching challenge that most global CIOs face is developing a common IT governance strategy that specifies a standard set of technologies and

There's just a whole lot more to remember and a lot of moving pieces to keep track of.

RICK DAVIDSON, GLOBAL CIO, MANPOWER

applications in order to leverage global buying power, realize huge economies of scale, spread best practices discovered in one business area throughout the world, and gain a global view of customers and operations. But that entails taking inventory of the hundreds or thousands of local systems and applications that are in many ways redundant but also serve local needs.

At Lenovo, for instance, Bandrowczak's main mission will be to take Lenovo's and the former IBM PC business's separate systems and combine them into one that supports global supply chain processes. "The IBM PC business was focused on large enterprise customers, whereas Lenovo in China focused on small to medium-size businesses and consumers, so each

had totally different requirements," he says. To move forward, he needs to determine which functions all sets of customers demand and build a single global system to support them.

In some cases, this means discovering best practices that already exist in the company and developing systems that globalize them. "China is extremely efficient in its supply chain and product development areas, but the challenge will be incorporating that into all the markets we choose to play in," Bandrowczak says.

Identifying Best Practices

Deciding which country exhibits the best practices in a given area is a complex chore in itself, says Crotts, who manages IT for Shell's global business-to-business and lubricants business areas. He's now in year three of a multi-year journey toward common global systems that will be hosted in several data centers throughout the world. As part of that effort, Crotts decided that a CRM system employed in Malaysia was the best available and rolled out a system based on it in 16 countries.

To determine which CRM system was the best, Crotts first looked at metrics such as cost per transaction, customer satisfaction and call center size to compare many countries' systems. Gathering these metrics, however, was "an inexact science," he says. In some countries, these types of measurements didn't even exist, and a simple question like, "How many people run your call center?" led to confusion over which staffers to include. "Defining

key performance indicators to measure systems between countries is a significant challenge," Crotts says.

At Cisco Systems Inc., global CIO Brad Boston faced a similar challenge two years ago. At the time, Cisco had "distinctive geographic theaters," with IT leaders in the U.S., Europe and Asia, he says. Each region chose and managed its systems autonomously, so there was a lot of duplication. "We were really acting like an international company, with a bunch of local systems but not a single, global view," Boston says.

Cisco has since restructured, eliminating the regional IT leaders and having IT staffers report to a global vice president in charge of the business function they support, such as sales, customer service or manufacturing. Boston has spent the past two years managing a worldwide effort to minimize redundant systems by globalizing existing systems or creating new ones with customizations to support the needs of different marketplaces. For instance, a single application now calculates sales commissions on a global basis while accounting for the various plans that salespeople can adhere to, depending on which country and marketplace they serve.

Just deciding which systems and applications can be centralized and which should stay local is a major conundrum, Manpower's Davidson says. Manpower has embarked on building a "global/local" IT organization, in which a global staff reports to Davidson and is responsible for creating a common infrastructure and business

applications, while local IT staffers in the 72 countries in which Manpower operates report to a regional or country-based IT leader.

Balancing global and local needs is a constant struggle, Davidson says. "Every day you have to think where that line is drawn, and it's not a straight answer; it's always a negotiation, and the line continues to move," he says.

Any CIO needs to understand the fine art of negotiating: Who's going to give up their favorite tool or application, and is a particular customization really necessary? But it's a whole different art when you have to work out prickly issues with people in diverse cultures. This requires an acute understanding of cultural differences.

In the U.K., U.S. and Germany, for instance, people tend to be very comfortable jumping into intense discussions, Davidson points out, whereas in Latin America and Japan, the culture is more focused on building relationships before approaching a difficult task.

"In Japan, they have seven ways to say no; they never want to offend," he says. "Sometimes they nod their head, and you think you have an agreement, but they're just saying, 'I hear you.'"

This is true throughout the Pacific Rim and Asia in general, says Fred Danback, vice president of global technology at XL Global Services Inc. in Stamford, Conn. "You get nods and agreement, but that's just to honor you," he says. "To get someone to buy into your strategy, you have to navigate their culture."

It's equally important to understand



Steve Bandrowczak
Global CIO
Lenovo Group
KEY CHALLENGE:
Keeping up with demand

When Bandrowczak was hired in September as global CIO at Lenovo, he filled a very large gap. "There was just a bit of pent-up demand when I got here because there was no CIO in place, and it is on the critical path of every business function and opportunity for synergy savings and sales growth," he says. In his 25 years in the industry, Bandrowczak says, "there's never been more projects and less budget to complete them with. There will always be more demand than dollars."



Fred Danback
Vice president,
global technology
XL Global Services
KEY CHALLENGE:
Managing global teams

It's important for members of geographically dispersed teams to interact as if there's just a half-way – not an ocean – between them, Danback says. To nurture that feeling, XL Global requires the use of videoconferencing for meetings involving more than three or four people on a global team. Global teams are also encouraged to meet face to face on a regular basis at XL's Stamford, Conn., headquarters. "It adds a whole new level of interaction," Danback says.



Brad Boston
Global CIO
Cisco Systems
KEY CHALLENGE: Taking a global skills inventory

When he worked at Visa International Inc., Boston discovered that he could find higher-caliber data center staffers in the U.K. because that region tends to view data center jobs – including shift work – as white collar, whereas the U.S. views them more as blue collar. This led him to close the night-shift operation in Visa's San Francisco Bay area data center – where skilled techies were hard to find at the time – and shift those responsibilities to the Raleigh/Durham, N.C., and U.K. data centers.

different countries' business climates. At Lenovo, for instance, system requirements are very different for products sold in fast-growing markets in China and India than they are for those sold in emerging markets in Brazil and parts of Eastern Europe, Bandrowczak says. In addition, small businesses and consumers buy products and services very differently in China than they do in Dubai. "Getting a geographic understanding is very easy when you're playing within the four walls of what you're familiar with," Bandrowczak says. "But in a global position, you have to understand the differences in conducting business around the globe and create solutions that meet those differences."

"There's just a whole lot more to remember and a lot of moving pieces to keep track of," adds Davidson. "Imagine a new financial system in 30 countries: Even the statutory requirements are different, like how you report financials and what chart of accounts you need to set up."

Sizing Up the Situation

Differing data privacy laws can also wreak havoc. Manpower is hosting several applications, such as CRM and payroll, in its U.S.-based data center, which will contain contact information for customers and employees who reside in Europe. As a result, the company needs to obtain approval from the various European governments to store that personal data. "When you design these systems, they need to be extensive enough to accommodate those differences," Davidson says.

Different countries' economies also play a role in how global IT decisions are approached, Davidson says. Since Manpower's profit margins are highly reliant on the wages a country's temporary labor force can command, when planning a new system Davidson has to balance the economic conditions in Thailand or Vietnam with those of wealthier places like Europe. "You can't put a sophisticated technology solution in place to manage people making \$4 to \$5 per hour," he says. "You have to plan a platform that can scale from the low end of the technology

mobile devices than the U.S., he commissioned IT staffers in the U.K. to build converged PDA/cell phone devices because they could more creatively run that project. Meanwhile, IT staffers in Sydney, Australia, are leading the IP telephony effort because engineers there had developed an innovative architecture for remotely supporting telephony for the Asia-Pacific region.

Danback has learned to use the cultural differences among worldwide IT staffers to his advantage. He has found, for example, that the culture in the U.S. tends to be more action-than

You've got to love what you do; otherwise, it's a burn-out waiting to happen.

JAY CROTT, CIO of global lubricants and B2B businesses, Royal Dutch Shell

continuum to what a country like the U.S. or France can handle."

One person obviously can't manage all these differences; that's why it's so important to hire a really great team. And functioning as a truly global company means hiring the best person for every role, no matter where in the world he may reside.

At Cisco, Boston says that taking a global skills inventory and then leveraging those skills has been one of his biggest challenges. For instance, because Europe is more aggressively adopting

detail-oriented, while the cultures in Germany and Switzerland encourage more engineering-intensive mentality. The U.K. culture, he says, is generally very results-oriented.

Put all these together, Danback says, and you've got a well-balanced team. "We realized we can leverage the great qualities of these different cultures," he says. "Someone from Switzerland might drive the team toward the highest possible quality, while staff from the U.K. will insist on meeting project deadlines. Add positive energy and

spirit often contributed by the Americans, and we have the recipe for a high-performance team."

But hand in hand with locating skills globally is the challenge of managing people in far-flung places and teaching lower-level managers to do the same. For instance, Boston says, you can't schedule a staff meeting every Friday at 8 a.m. California time, because that's midnight for others. "It's bad form to call a four-hour 9 o'clock meeting on a Friday, because that's either Saturday in Asia or 5 p.m. in the U.K., and you're really cutting into someone's personal life in an unnecessary way," he says.

Videoconferencing can fill some gaps, but it's crucial to schedule face-to-face IT staff meetings throughout the year. "The efficiency of the team goes up dramatically," Crotts says. "Don't underestimate the power of bringing people together. Projects will never move forward unless people can put a name and a face together."

That brings up the dreaded T word: travel. Whether meeting with business leaders or IT counterparts, "you just have to reconcile yourself to being on the road quite a bit," Boston says.

"Sleep when you can and drink a lot of water," Crotts advises, and when crossing time zones, don't assume that your wits are always at their sharpest. Perhaps most of all, he says, "you've got to love what you do; otherwise, it's a burnout waiting to happen."

Brandel is a Computerworld contributing writer in Newton, Mass. You can contact her at marybrandel@verizon.net.



Rick Davidson
Global CIO
Manpower

KEY CHALLENGE:
Negotiating with business leaders worldwide

Global CIOs need two skills that might at first appear to be diametrically opposed, Davidson says: patience and persistence. "When you're in Prague or Tokyo or Latin America, and you're meeting with business leaders and they're trying to explain something to you, and English is not their first language, and you're tired and your stomach is in knots because you're on a different eating schedule, it's really easy to stop listening and start dictating," he says. "But you have to stay focused on listening and understanding." At the same time, your agenda can be in opposition to that of the people you're meeting with. "You have to continue to push, and sometimes that's not comfortable," he says.



George Coulter
vice president and CIO
AES

KEY CHALLENGE: Finding IT talent in remote places

Coulter is happy to say that AES has hired qualified regional IT managers or CIOs for 85% of the countries in which it does business. Places such as Cameroon in West Africa and Ukraine posed a real challenge, however. "Those two searches took over a year," he says.



Jay Crotts
CIO of global lubricants and B2B businesses
Royal Dutch Shell

KEY CHALLENGE:
Implementing global applications

Global CIOs are responsible for enabling applications that meet country-specific fiscal and legal requirements, and that opens the door for country managers to try layering on more customizations than they really need. At Shell, one business unit showed Crotts a list of 47 country-specific fiscal and legal requirements that it said had to be turned into local system customizations. "We went through them, and there turned out to be three," he says. "Sometimes they're just business norms that can be met through small modifications."

From Traveling T-shirts To Google

Two best-selling business authors talk about IT's role in the global economy.

MANY OF THE TOP business books of the year have focused on the role of IT in the global economy. Two of those — *The Travels of a T-shirt in the Global Economy: An Economist Examines the Markets, Power, and Politics of World Trade* by **Pietra Rivoli**, and *The Search: How Google and Its Rivals Rewrote the Rules of Business and Transformed Our Culture*, by **John Battelle** — approach the issues from distinct viewpoints. Both are finalists for The Financial Times and Goldman Sachs Business Book of the Year, to be awarded this week. The authors talked with Kathleen Melymuka by e-mail about IT and its place in this emerging world.

How important is corporate IT in the new global economy?

RIVOLI: Well, that is a funny question because in many ways corporate IT created the new global economy. Global trade and exchange, global flows of capital, immigration and emigration — these are all ancient pieces of the idea of a global economy. But if you ask about the new global economy, it seems to me what is new is IT.

IT is what has facilitated the rest of globalization. If we think about the role of IT in global exchange, it is easy to see that IT takes existing forces in the global economy and magnifies them.

[*The World Is Flat* author] Thomas Friedman's electronic-herd metaphor is a perfect illustration of this.

BATTELLE: [IT is] as important as ever. It's how we understand our business, and in the end, most businesses find advantage in the analysis and extraction of knowledge in this economy. It's where we never run out of opportunity — the creation of human knowledge. IT is the infrastructure that can make or break that in the enterprise.

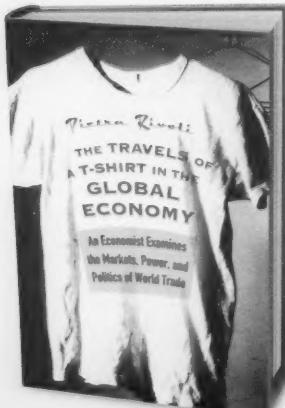
Is the corporate CIO's role more important and powerful than ever, or does the pervasiveness of IT make the CIO less important and powerful?

BATTELLE: It really depends on what role the CIO is allowed to have. Too often it's "the tech guy," when it should be "the business process/innovation guy." I'd hate to have my knowledge hampered by someone who was more passionate about tech than my business, but that often

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"If we think about the role of IT in global exchange, it is easy to see that IT takes existing forces in the global economy and magnifies them."

PIETRA RIVOLI



Planning the Trip

THE T-SHIRT is from China. It likely departed Shanghai in late 1998 and arrived in the port at Miami a few weeks later. All told, the shirt cost Sandler [the importer] \$1.42, including 24 cents in tariffs. The shirt was one of about 25 million cotton T-shirts allowed into the United States from China under the U.S. apparel import quota system in 1998. The shirt's journey, we shall see, is a testament to the power of economic forces to overcome obstacles. To arrive here, the shirt fought off the U.S. textile and apparel industries, Southern congressmen and a system of tariffs and quotas so labyrinthine that it is hard to imagine why anyone would take the trouble. But Gary Sandler takes

the trouble. Despite the best efforts of Congress, industry leaders and lobbyists, despite the quotas, and tariffs, and Chinese bureaucracy, China has the best shirts at the best price.

But China is a big place. Where, exactly, I asked Sandler, did the shirt come from? Sandler ruffled through his Rolodex and pulled out a card. "Mr. Xu Zhao Min," the card read. "Shanghai Knitwear."

"Call him up," said Sandler. "He's a great guy. He'll tell you everything."

"Xu Zhao Min," I tried to read aloud.

"No, no," said Sandler. "Patrick. His American customers call him Patrick."

Patrick Xu and his wife accepted my invitation to visit Washington during their next trip to the United

States.

"Come to China," Patrick said. "I'll show you everything."

I wanted the whole story, I explained. Could he show me where the shirts were sewn? No problem. What about where the fabric is knit? Yes, of course. I pushed my luck: What about the yarn the fabric is made of? The spinning factory? Yes, he could arrange it. But this wasn't quite the beginning. What about the cotton?

To tell the life story of my shirt, I had to start at its birthplace. I knew that China was one of the world's largest cotton producers. Could I go to the farm and see how the cotton is produced?

Patrick looked at the T-shirt.

"Well, that might be difficult. I

think the cotton is grown very far from Shanghai. Probably in Teksa."

"Teksa? Where is Teksa? How far away?" I asked. There was a globe on my desk and I spun it around to China. Could he show me Teksa on the globe?

Patrick laughed. He took the globe and spun it back around the other way. "Here, I think it is grown here." I followed his finger.

Patrick was pointing to Texas.

Excerpted with permission of the publisher, John Wiley & Sons Inc., from *The Travels of a T-shirt in the Global Economy: An Economist Examines the Markets, Power, and Politics of World Trade*. Copyright 2005 by Pietra Rivoli. This book is available at all bookstores, online booksellers and from the Wiley Web site at www.wiley.com, or call (800) 225-5945.



Pietra Rivoli, an author and economics professor at Georgetown University



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seems to be the case.

RIVOLI: Nicholas Carr takes this idea too far, I think, when he argues that pervasiveness means that the role of the CIO in creating value is limited. The IT function has evolved considerably over the years, from tecchie to strategist, and no doubt will continue to evolve in ways that we can't anticipate today. But a corporation is kind of like a living system. Finance, market-

"[The biggest challenge will be] connecting my data infrastructure with that of the end user customer. We have the middle done; now, outward to the end." JOHN BATTELLE

ing, IT are all part of the organism, and it is hard to clearly separate the value contributions of each. How can we talk about which is more important, or which is becoming more important? All are critical pieces.

Perfect Search

HERE DO WE GO from here? Now that Google is public, and revealed to be moral, now that almost every major media and information technology company in the world has declared search integral to its future, what might come next? Can anything possibly match the cultural thunderclap of the early Web, or the singular epiphany we all felt the first time we used Google?

Of course it can. When it comes to search, as with the Internet itself, the most interesting stuff is yet to come. As every engineer in the search field loves to tell you, search is at best 5% solved — we're not even into the double digits of its potential. And search itself is changing at such a rapid pace — in the past year, important innovations have rolled out once a week, if not faster — that attempts to predict the near future are almost certainly doomed.

So let's instead imagine a world of perfect search. What might that look like? Imagine the ability to ask any question and get not just an accurate answer, but your perfect answer — an answer that suits the context and intent of your question, an answer that with eerie precision is informed by who you are and why you're asking. This answer is capable of incorporating all the world's searchable knowledge into the task at hand — be it captured in text, video or audio formats. It's capable of distinguishing between straightforward

requests (Who was the third president of the United States?) and more nuanced ones (Under what circumstances did the third president of the United States forswear his views on slavery?).

While it's true that most questions don't have an objectively perfect answer, perfect search would provide your perfect answer, as you determine it — in a report form, perhaps, or by summarizing key points of view and trends. This perfect search also has perfect recall. It knows what you've seen and can distinguish between a journey of discovery, where you want to find something new, and recovery, when you want to find something you've seen

before. And, quite important, it's capable of distinguishing between a document and a person — and suggesting that to get the perfect answer, you may well best talk to this person, as opposed to reading that document.

In short, the search engine of the future isn't really a search engine as we know it. It's more like an intelligent agent — or, as [Google co-founder] Larry Page told me, a reference librarian with complete mastery of the entire corpus of human knowledge.

Reprinted from *The Search: How Google and Its Rivals Rewrote the Rules of Business and Transformed Our Culture*, by John Battelle, by arrangement with Portfolio, a member of Penguin Group (USA) Inc. Copyright John Battelle, 2005.

If you were CEO of a large U.S. company, what would you expect from your CIO?

RIVOLI: We need our CIOs to be on top of the technology but integrated with value creation and strategy. Does the CIO understand and support the company's underlying business model? Does he or she understand the company's sustainable advantages and how to enhance them? Does he or she have a value-creation mind-set? Above all, this role requires creativity.

BATTELLE: [I'd expect] a complete understanding of the company mission and a total commitment to employ technology toward that end; absolute fluency with how the Web is reshaping the world of your customers and a willingness to try new things even if they feel scary or threatening to established models; willingness to tell me I am wrong; mutual respect.

Are U.S. companies poised to lead in this emerging global economy, or is lead the wrong word for the role they ought to play?

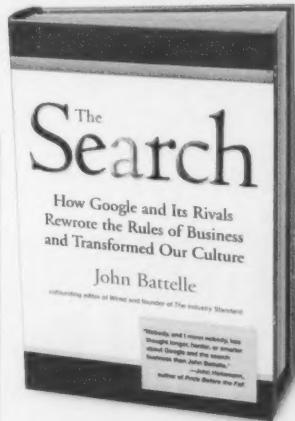
BATTELLE: Sure they are. Look at the tech sector.

RIVOLI: No one country is going to lead. And who really knows what a U.S. company is anyway? In what sense — other than as a formality — is IBM really an American company? The idea of company nationality has less and less meaning.

I can say that the infrastructure provided by a country — especially its education and research capabilities — will be more and more important. But the value of this infrastructure is not captured only by companies with a certain nationality. Think of the tremendous advantages captured by Toyota from its U.S. manufacturing. Are they less than the advantages captured by GM? I don't think so.

If you were a CIO, what would you be doing to ensure that your IT shop could play the role required of it over the next five years?

BATTELLE: I'd be trying like hell to use Web 2 tools to do what I do now with multimillion-dollar commitments to old-school vendors like Oracle, IBM,



Siebel and SAP.

RIVOLI: Education will remain critical. We have to enable the employees to stay on top of both the technologies and their applications. I know at many universities, IT is so focused on keeping the machine running and putting out fires that it is difficult for employees to stay on top of what's happening.

Looking out five years, what's the biggest change you expect to see in how business is done?

RIVOLI: I see a couple of big changes. As far as IT goes, the world will continue to flatten, and this function will be increasingly global in scope. On this I completely agree with Mr. Friedman. A second change: There is still a lot of room to integrate IT into the delivery of products and services, especially for small and medium-size business. The most glaring example in the U.S. is in health care delivery. Think how much more could be accomplished with the intelligent application of IT. As the baby boomers age, this is a very high-growth area. It is pretty amazing that we still have doctors scribbling on prescription pads and patients and pharmacists trying to read them. Finally, I think IT will increasingly become a focus for those concerned with corporate social responsibility. The digital divide may be narrowing, but it has not gone away. The forward-looking companies will be addressing this even more.

BATTELLE: [The biggest challenge will be] connecting my data infrastructure with that of the end-user customer. We have the middle done; now, outward to the end. ▶

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EXEC TRACK

Barclays Taps Freeborn to Be CIO

PHILIP FREEBORN has been named managing director and CIO at Barclays Capital, the investment banking division of London-based Barclays Bank PLC. Freeborn will join the company in January and will report to Chief Operating Officer Rich Ricci. Previously, Freeborn worked for 12 years at UBS AG, most recently as global CIO at the investment bank.

Lutz to Head IT

Orchid Cellmark Inc., a Princeton, N.J.-based provider of identity DNA testing services, has appointed WILLIAM J. LUTZ to the newly created position of vice president of IT. Lutz most recently served as CIO at Generac International Inc.

Krishnamurthy CTO At Northern Trust

NIRUP KRISHNAMURTHY has been named executive vice president and chief technology officer at Northern Trust Corp., a Chicago-based provider of asset management and services. Krishnamurthy had been working at UAL Corp. since 1990. His most recent role there was vice president and CIO.

Polizzi Named CIO

BJ's Wholesale Club Inc. in Natick, Mass., has appointed JOHN POLIZZI senior vice president and CIO. Polizzi was formerly a senior vice president at Blockbuster Inc., where he directed a global IT organization responsible for 8,000 stores in 26 countries. He has also led IT strategy work at Burger King Corp. and Caldor Corp.

Lofgren Elected To CA Board

CHRISTOPHER B. LOFGREN has been elected to the board of directors at Computer Associates International Inc. Lofgren is currently president and CEO of Schneider National Inc., where he has held a number of IT positions, including CIO and CTO.

BARBARA GOMOLSKI

Oil and the IT Recovery

NEXT year has the potential to be one of the most positive years in IT spending since the dot-com bubble burst. Whether we actually see an IT spending recovery in 2006, however, depends largely on the price of oil.

Surveys of IT managers on IT spending intentions conducted by my firm and others are predicting increases in IT budgets of between 5% and 7% for 2006 (compared with 2005 levels). That would be the healthi-

est increase since 2001, when a series of economic events and the 9/11 attacks required most companies to cut IT spending. For the most part, the IT industry has been treading water ever since.

Today, the U.S. economy has substantially improved, by many estimates. Corporate earnings are looking more positive. Job reports are decent. Even in the wake of Hurricane Katrina, the U.S. economy seems to be faring pretty well. (Europe is significantly shakier, with low gross domestic product growth spreading across the continent like the latest exotic flu.)

But then comes this nasty bit about oil. Allow me to share a few recent anecdotes:

- A CIO at a toy manufacturer remarks that the company is now concerned about its financial results for the fourth quarter. Seems that resins, made from oil, are the main component of the company's dolls. So its costs are up significantly.

- An IT manager in a tire manufacturing firm laments that oil prices are the main threat to his IT budget next year. Of course, tires are made

with petroleum.

- A CIO at a branch of the U.S. Department of Defense reports that IT initiatives will be an even lower priority in 2006 than they were in 2005. The agency spends most of its budget on weapons and fuel. When fuel costs soar, operating costs soar.

I haven't even mentioned the most direct effects of high fuel costs, such as the damper they put on consumer spending and the squeeze they put on the already cash-strapped

airline industry.

As individuals, we are all shelling out more for gas. As businesses, we are seeing a direct impact on profitability because of oil prices. Could this be enough to derail the impending IT recovery of 2006? You betcha.

What to Do?

When I was contemplating this column, I seriously questioned whether this was an appropriate topic for *Computerworld*. This column is meant to offer guidance to IT managers and help you excel in your jobs. What could I possibly tell you that will help you in this situation, over which you

have no direct control?

All I can say is that we are all consumers, and we make choices with our wallets every day. Certainly, we can't stop buying gas or home heating oil. But we can conserve, and we can put pressure on legislatures to develop alternative fuel sources.

You may think I'm waxing environmental here; I'm not. In fact, I'm a pretty fervent capitalist and Adam Smith economist, believing that a free-market economy is inherently self-correcting and that minimal government intervention in business matters is best. I don't drive a hybrid car, and one of my vehicles gets downright atrocious gas mileage.

Still, this oil issue is turning me into an environmental pragmatist. Simply put, the imbalance in oil prices disturbs my economic sensibilities. I'd rather see the discretionary dollars of individuals and companies going into new IT initiatives (or even capital equipment) than into the pockets of the oil companies. I'd rather see IT organizations bring on more staffers than watch the pay of oil industry executives climb.

So, in my own little way, I'm trying to make things better. I don't commute to work, but when I do drive, I try to maximize my mileage. I've also decided to bite the bullet and put in a solar electric system, since I live in an area where the sun shines most days.

Will my efforts, and the efforts of many others like me, make a difference? Will all this have any impact on the IT industry? I don't know for sure. However, if you had told me 10 years ago that oil was siphoning off the IT industry's growth, I probably wouldn't have believed you. Today, I'm a believer. ▶

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BARBARA GOMOLSKI, a former *Computerworld* reporter, is a vice president at Gartner Inc., where she focuses on IT financial management. Contact her at barb.gomolski@yahoo.com.

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Team Lead: eBags Inc. seeks applicants for the position of Team Lead in Greenwood Village, CO. Engage in full life-cycle software development of E-commerce applications using .NET technology and coordinate and oversee the work of developers in US and outside the country. Respond by resume to Human Resources, eBags, 6060 Greenwood Plaza Blvd., Greenwood Village, CO 80111.

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Systems Analyst sought by Comp. Consult. Co. Bachelor's in Mgmt. Info. Sys. or Comp. Sci. and 1 year of exp. if exp. included Oracle and VB for Applications. Resumes to Action Systems, P.O. Box 7518, Chicago, IL 60680-7518.

Software Development Engineer: McData Corp. seeks applicants for the position of Software Development Engineer in Santa Clara, CA. Develop client/server applications with user representation using Java 1.4 standard edition, RMI, reflection and Swing, as well as system engineering skills such as client/server communication, data persistence, complex data models, message passing, and graphical presentation. Requirements include master's degree in computer science or electrical engineering and working knowledge of Java 1.4 standard edition. Req. Rational Rose and Select Architect for functional part and Java technologies (J2EE), Oracle, SQL, Sybase, PL/SQL, and C/C++ for system engineering. Respond by resume to Kate Frazier, McData, 380 Interlocken Crescent, 8th Fl., Broomfield, CO 80021.

IT Manager for OH based IT firm to Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis and computer programming. Consult with users, management, vendors & technicians to assess computing needs & system requirements. Apply with 2 copies of resume to H.R.D., Halcyon Solutions, Inc., 950 D Taylor Station Road, Columbus, Ohio 43230.

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BRIEFS

Oracle Purchases Two Security Firms

Oracle Corp. has acquired a pair of companies in an effort to strengthen its portfolio of identity and access management products. The software vendor said it bought Thor Technologies Inc., a provider of a cross-platform provisioning products, and Octet String Inc., a developer of virtual directory software, for undisclosed sums. Oracle said it has no plans to buy more identity management technologies.

AMD to Build Chip With Four CPU Cores

Advanced Micro Devices Inc. has added a quad-core server processor to its technology road map and promised to increase its software investments. The new quad-core processor design, due to be unveiled in 2007, will incorporate four CPU cores connected by a new version of the HyperTransport interconnect technology and will support DDR3 memory.

Nokia Pays \$430M For Wireless Vendor

Nokia Corp. has agreed to buy Intellisync Corp. in a deal valued at \$430 million. Intellisync makes wireless e-mail, synchronization and device management software. Nokia said the move should help it expand in the enterprise mobility market. Intellisync's 450 employees will join Nokia's Enterprise Solutions group.

IBM Buys Maker of Configuration Tools

IBM's software unit has acquired Collation Inc., a maker of autodiscovery and application resource mapping software. Collation's Configina software can automatically capture and display on a detailed map information about the configuration of a user's hardware and software. IBM didn't disclose the value of the deal.

Continued from page 1

CA

ees on a variety of topics. The source of the most acute customer concern was CA's decision earlier this year to eliminate all 300 of its customer advocate positions worldwide. Swainson said the goal was to make the company's sales workers "more accountable" by

requiring them to be the main point of contact for users.

But Jarrid Magalich, a senior enterprise architect at retailer Sheetz Inc. in Altoona, Pa., said that losing his customer advocate "is a black mark, in my book." The advocate visited his office every other week and "acted like a commissionless sales rep," Magalich said. "It was a great working relationship." He added that

Users See CA's Break From Its Past As a Step Forward

LAS VEGAS

THE TURBULENT HISTORY of Computer Associates is claiming another victim: the company's name. At CA World, the software vendor said it plans to officially change its name to CA Inc. within the next few months.

The new name is the latest example of how John Swainson, CA's president and CEO, is trying to separate the company's future from the less savory aspects of its past. Swainson, who became CA's top executive last November, announced the planned name change during his opening keynote at CA World. He went on to list his priorities for overhauling CA, which include repairing damaged customer relationships and expanding the company's network of business partners.

Scott Bradshaw, a consultant at London-based HSBC Holdings PLC, said he was struck by how thoroughly Swainson disavowed CA's past. "It's really evident that CA's new management is trying to distance itself from the old company, which is a good thing," Bradshaw said. He noted that HSBC relies heavily on CA's vast software portfolio.

Other conference attendees who have beta-tested some of the new products that CA announced last week said they have been comfortable working with the

company through the first year of Swainson's transformation effort.

"I feel better, much better, about CA now," said Linda Reino, CIO at Universal Health Services Inc., a hospital operator based in King of Prussia, Pa. Reino noted that CA's continuing development of new products is one reason she has stuck with the company.

Keith Rabun, information systems division manager at Austin Energy in Texas, said he also feels better about working with CA now. The central management database that CA has built into Unicenter R11 has "huge" value to

Austin Energy because it reduces the number of databases that have to be consulted to see if network problems are occurring, Rabun said. He added that the utility has already seen a doubling, from 30% to 60%, in the rate of network and systems problems that are being resolved after a single call from an end user.

Andrew Cooper, a consultant who works in Belgium for Sogeti Group, a unit of Capgemini, said he's testing Unicenter R11 for resale to Sogeti's customers. Cooper said it remains to be seen how dramatic a turnaround Swainson will be able to engineer. But, he added, "I think CA is better off than a year ago."

— MATT HAMBLIN, WITH
STACY COWLEY OF THE
IDG NEWS SERVICE



Swainson says healing relationships with users is a priority.

he was told by CA that the advocate's role would be replaced by phone support. But Magalich said he doesn't plan to take advantage of that.

Pricing was another point of concern for users.

CA executives described a new software licensing approach at the conference. The company has begun implementing "simpler pricing" across the board," said Mark Combs, senior vice president and general manager of the CA Products Group. For example, CA has collapsed what previously were nine pricing tiers for its Unicenter Network and Systems Management and Advanced Systems Management products down to just three that are based solely on the number of CPUs in a server, Combs said. Before, the nine tiers were based on a variety of factors, he added.

But some CA World attendees were left scratching their heads. "We don't know what this will do to our existing contracts," said an IT manager at an insurance company based in the Midwest. The user, who asked not to be named, added that he was frustrated by the lack of clarity from executives at CA World.

Users also face the potential need to install new software agents on thousands of servers and network nodes due to the rollout of Unicenter R11. Mark Barrenechea, CA's executive vice president of technology strategy and chief technology architect, said the Integration Platform was designed to work with agents from earlier Unicenter releases. But, he added, users should install the latest agents when they buy new servers and be prepared to upgrade all of their agents over the next 18 to 24 months.

David Courter, president of the Midwest Regional Unicenter User Group, said he also had heard concerns from some members about the upgrade path for products outside of CA's core offerings. "I can't

TECHNOLOGY DETAILS

CA's Integrated Software

The 26 products that CA announced last week include the following:

Unicenter tools for managing IT infrastructures, clustered and virtual systems, and IT service desks.

Additional Unicenter software that provides data on key IT performance indicators and the allocation of IT resources.

BrightStor Storage Command Center, a dashboard application for tracking the use and performance of storage assets.

CA Identity Manager, a security tool that automates the management of end-user identities.

judge right now," said Courter, who asked that his employer not be identified. "I think CA needs more time, maybe by next year," to fully communicate its upgrade plans, he said.

"There's probably going to be a consolidation in the product line, since CA has a new strategy and wants to be seen not as a tools company but as a tool-kit company," said Rich Ptak, an analyst at Ptak, Noel & Associates in Amherst, N.H. "To do that, they will have to get rid of stuff."

Under the most scrutiny, Ptak said, are the hundreds of tools put under the CA Products Group, one of the five business units that CA created last spring. Nearly 90% are for mainframes, according to Ptak.

Barrenechea said the software managed by the Products Group is being maintained and revised as needed. But CA doesn't expect those products to sell beyond their current installed bases.

"They are very important products," Barrenechea said, "but they are not strategic to the growth profile of the industry or [CA]." He predicted that some of the tools will eventually reach an end-of-life status but said that CA would provide a smooth transition. ▀



FRANK HAYES ■ FRANKLY SPEAKING

Politics & Plumbing

IF THERE'S ONE CLEAR MESSAGE that came out of last week's compromise over Internet governance on the eve of the World Summit on the Information Society in Tunis, it's this: We don't need increased involvement by governments around the world to weigh down the Internet with politics and bureaucracy and to stifle innovation. We have ICANN for that.

OK, that's not exactly the way the Internet Corporation for Assigned Names and Numbers would prefer people to think about it. But the upshot of the deal remains the same: In the short term, nothing in Internet governance will change.

And in the longer term, everything will change anyway — no matter how politicians and bureaucrats try to muddle things up.

For corporate IT people, this Tunisian standoff may sound a little worrisome. Once again, a lot of political yahoos we can't control have been trying to rearrange our plumbing.

It didn't help that the very visible shouting match leading up to last week's deal made for some great sound bites, with U.S. politicians allowing that dictators and terrorists were trying to hijack the Internet, and non-U.S. politicians howling that Americans had already hijacked it.

Then, suddenly, the howling and bellowing and posturing were done. The deal was cut, everyone made nice, and it was time to talk about connecting the unconnected.

And now that the phony politicking is off the table, we may not hear anything more about the rest of that meeting in Tunis on TV or in the daily newspaper. That would be too bad, because casting an ever-wider Internet is the part we should actually care about.

After all, what we need from the Internet is reach. We want to reach customers and suppliers, wherever they are. We want to reach our staffs and salespeople, wherever they go. Reach means business. So it's very much in our interest to see the Internet reach the six-sevenths of the world that's not connected today.

But figuring out how to fund Internet expansion in the Third World doesn't generate overheated rhetoric or bold headlines. Getting IP connections and electricity to places far from the nearest telephone or power poles doesn't lend itself to sound bites. Putting Nicholas Negroponte's \$100 hand-cranked laptops in the hands of millions of farmers and students plays as a novelty, not "serious" news.

No, that less noisy work of last week's meeting is merely the stuff we'll all be helping pay for — and, we hope, profit from.

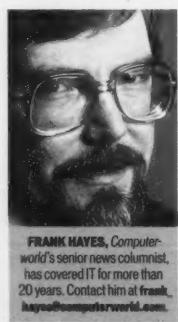
And what about those politicians poking at the plumbing? In public, they're looking for bragging rights. They want to say that they're overseeing ICANN and helping govern the Internet, too. (Actually, many countries already are, as part of ICANN's Governmental Advisory Committee. But that's been around since 1999 — no good opportunities for high-profile bluster there.)

Behind the scenes, they want a better handle on their own Internet problem: The Net makes communication uncomfortably easy for political opponents, criminals, terrorists, foreign businesses, religious missionaries and others with troublesome ideas or intentions. No wonder so many countries, in so many ways and for so many reasons, keep trying to clamp down on it.

Will the new United Nations-sponsored Internet Governance Forum that was proposed as part of the compromise provide that muzzle? Probably not. But for now, that should provide another chance for them to talk instead of playing politics with the Internet's internals.

Meanwhile, ICANN will get a breather — and another chance to prove it's not quite as bureaucratic, lead-footed and politically hamstrung as its critics say.

And in the long run? Satellite communications and those \$100 laptops could radically change the Internet over the next decade. And when that happens, fighting over who controls ICANN's domain-name bureaucracy will be the least of those politicians' concerns. ▶



FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at [frank.hayes@computerworld.com](mailto:hayes@computerworld.com).

And Worth Every Penny of It

Accounting department reports that the backup tape for a server won't stay in. Pilot fish tries, and runs a backup without a problem — but the next day the complaint is back. "We asked them to show us the problem, but they were too busy to stop and work with us," fish says. "This went on for weeks until accounting submitted a purchase order to hire a consultant. He came out and watched as our accountant inserted a cleaning tape into the drive — and a few seconds later it popped out. Consultant made a big label that said CLEANING TAPE, explained to the accountant that she needs to back up her data on one of the tapes that does not say CLEANING TAPE on it, and billed us \$150."

Hot Topic

User grabs pilot fish in the hall to complain that he deleted icons from his new PC's desktop yesterday but

they returned this morning. "It sounded like his roaming profile didn't get updated, so I asked if he shut it down properly," says fish. "He answered no, explaining that last night he and his secretary smelled smoke. They thought the computer was on fire, so they turned it off. I suggested that, in the future, if he thought his PC was on fire, it might not be wise to turn it back on — and I'd like to know about it."

Local Only

Help desk pilot fish gets a puzzling question from a user: Can she send e-mail to a company in the U.K.? "She explained that she tried to e-mail some people in the U.K. and the e-mail came back," says fish. "So she was under the impression that e-mail was like the phone system, and since she couldn't make an in-



international call, she couldn't send an international e-mail."

Better Than Y4

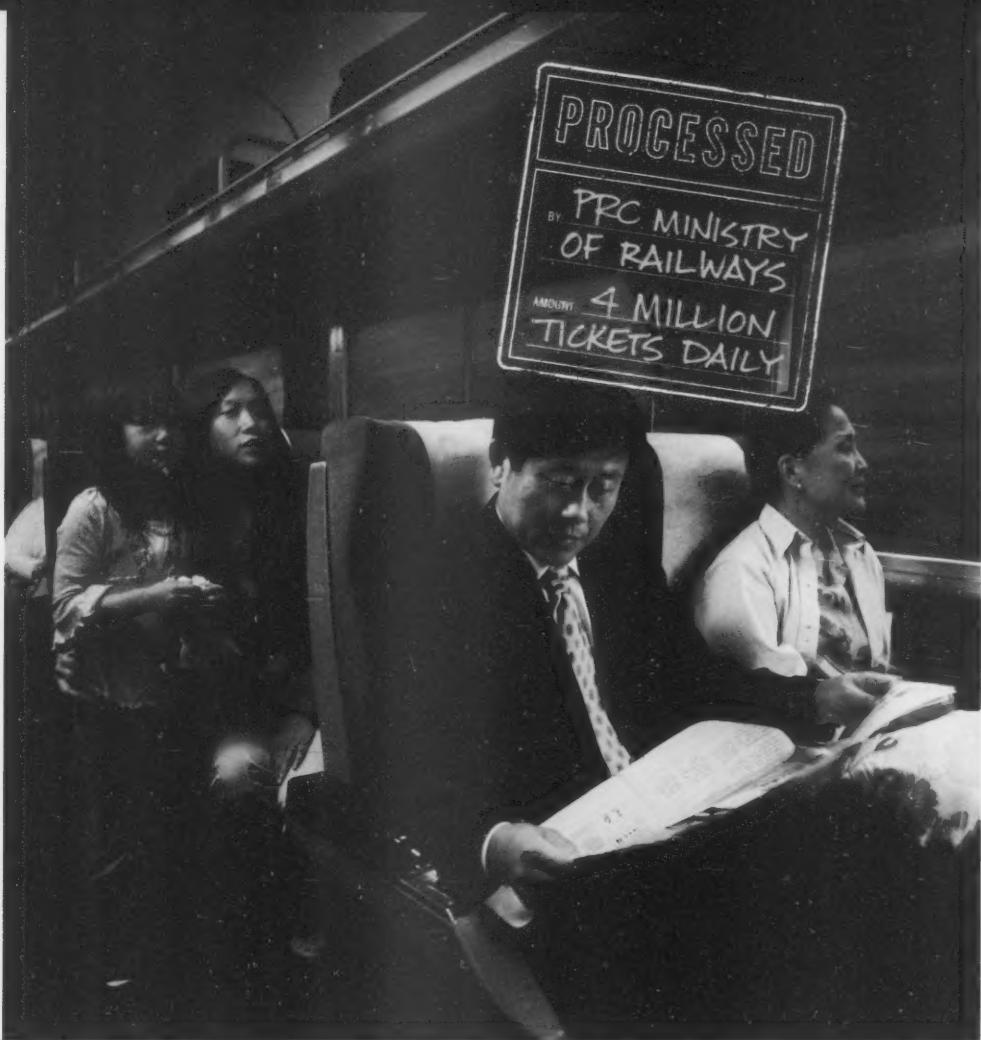
University help desk pilot fish gets e-mail from a department head who asks if her staff could get Y5 accounts. Y5? "I looked at this for a while and thought about responding to her to ask what she meant," says fish. "Then someone said this aloud and quickly, and it came to us what she was asking for. It was the first time I've ever heard Wi-Fi called Y5."

Like It or Not

User calls pilot fish asking for her password to be reset. Fish gives her the new password, but user replies, "How can I use the password when the ID won't work?" What do you mean it won't work? asks fish. User: "When I type in my ID and hit Enter, I get a screen that says 'invalid username.' So if the computer doesn't like my username, then how will it like my password?"



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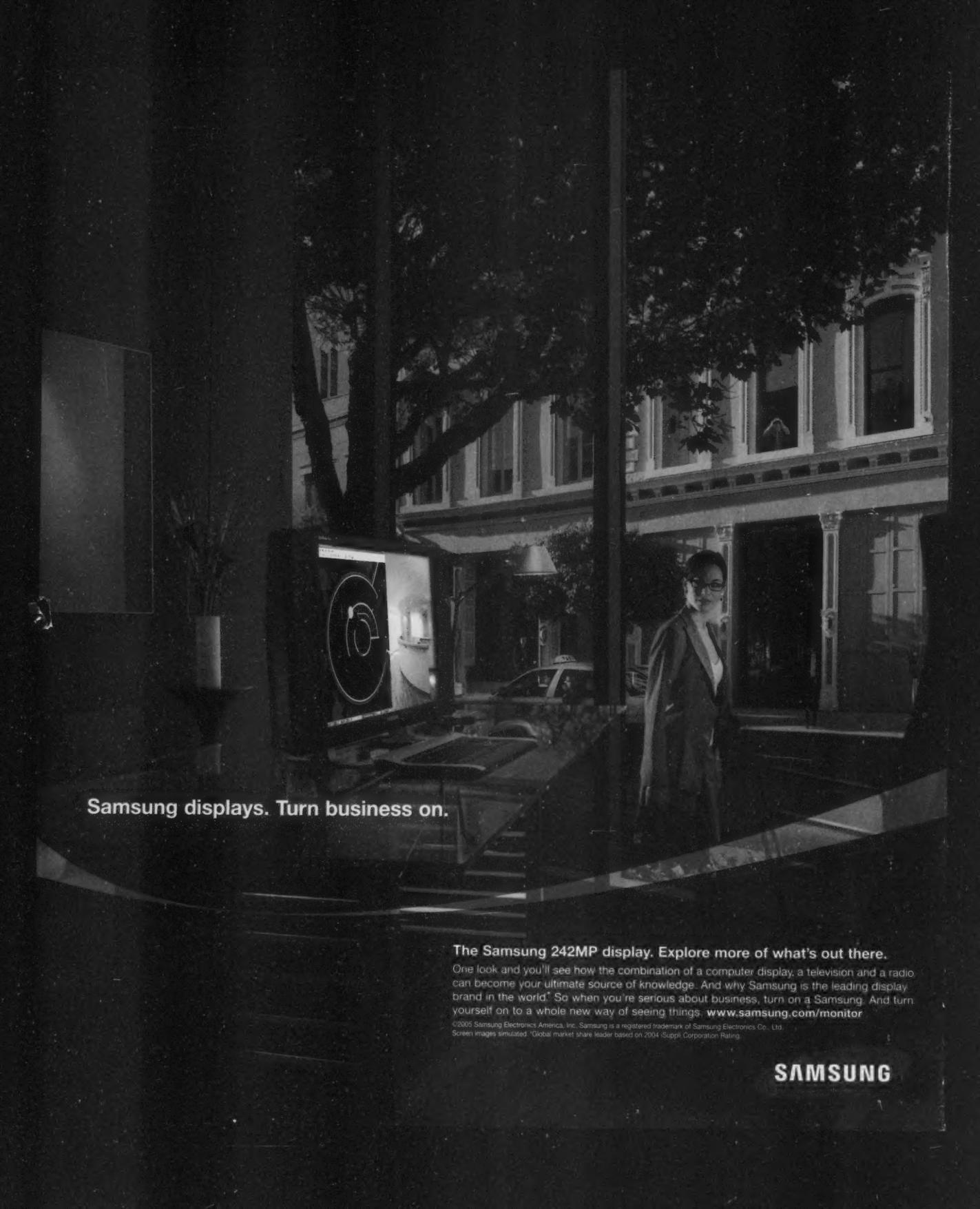
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